



Marshall University

From the Selected Works of Mark Zanter

Fall August 15, 2020

MUS 111: Elementary Music Theory I

Mark Zanter



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MUS 111: Elementary Music Theory I

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Unit One

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1.1

Objectives:

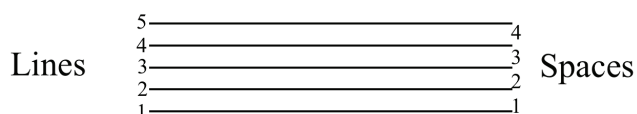
Students identify and construct: pitches on treble, bass, C clefs and grand staff, key signatures up to seven sharps or flats, and ASA octave designations (1.1; 1.3-5; 1.8-9).

Notation of Pitch:

The terms pitch and note are often used interchangeably; they stand for a sound at a specific frequency and are identified in music using one of the first seven letters of the alphabet (ABCDEFG) and symbols called accidentals that raise or lower the pitch.

The Staff:

Pitches are represented on a staff. The staff has five horizontal lines.. Both lines and spaces are numbered from the bottom of the staff. Pitches are notated on the lines, or on spaces existing between them in alphabetical order



For pitches notated on a line, the line goes through the center of the note head, on a space, the note head is centered in the space. This is true regardless of whether the note head is filled in, or open.



Clefs:

Clefs provide a reference from which all pitches on the staff can be determined. Each clef dictates pitches and corresponding range (tessitura) that can be notated on the staff.

Treble Clef:

The treble clef is an ornate letter "G" circumscribing the second line of the five line staff. The second line of the staff corresponds to the Pitch G4 using the ASA octave designation.



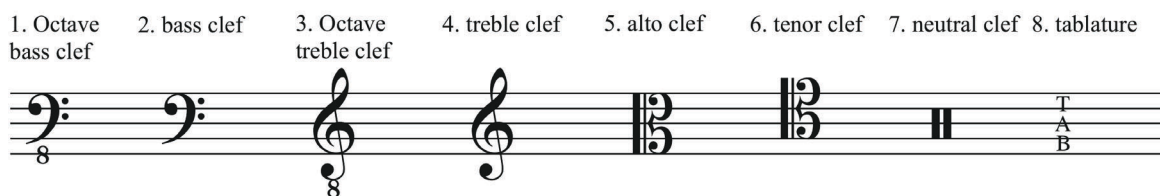
Bass Clef:

The bass clef is an ornate letter "F". Two dots on the right-hand side of the symbol circumscribe the fourth line of the staff. The fourth line of the staff corresponds to the Pitch F3.



1.1

More Clefs:

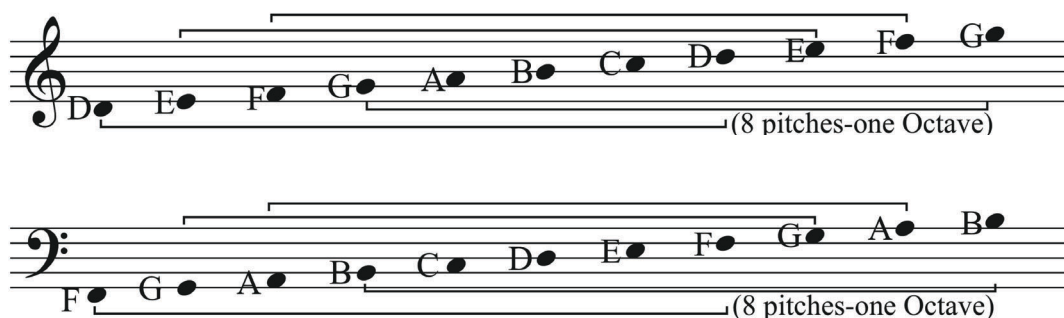


1. Octave bass clef: a bass clef with a small eight below the clef indicates that written pitches sound an octave below written. This clef is used for double bass, or electric bass. In practice bass clef is used because it is assumed that the double bass sounds an octave lower.
2. Bass clef: standard bass clef, fourth line sounds F3.
3. Octave treble clef: music on this staff sounds an octave lower than written. This clef is used for guitar, or tenor voice.
4. Treble clef: second line indicates G4.
5. Alto clef: The symbol for this clef is an ornate letter "C". When a C clef is used the line circumscribed by the clef symbol sounds Middle C (C4). C clefs are: soprano, mezzo-soprano, alto, tenor, and baritone (only alto and tenor are shown). Violists use Alto clef. C clefs appear frequently in historical literature.
6. Tenor clef: A C clef circumscribing the fourth line of the staff (C = C4). Used commonly by bassoonists, trombonists, and cellists.
7. Neutral clef: there are several forms in common use all of which use vertical bars placed on the staff. Neutral clefs are commonly used for un-pitched percussion where lines and spaces are used for specific instruments.
8. Tab: short for tablature. Commonly used for fretted string instruments. On tab clef lines correspond to the strings of the instrument; the first string being the top line of the staff. Numbers placed on the staff indicate frets on the guitar or bass fingerboard. The number of lines on a Tab staff will vary between four and six for bass and guitar.

Pitches on the staff:

The images below show all pitches on the staff for treble and bass clefs. Notice:

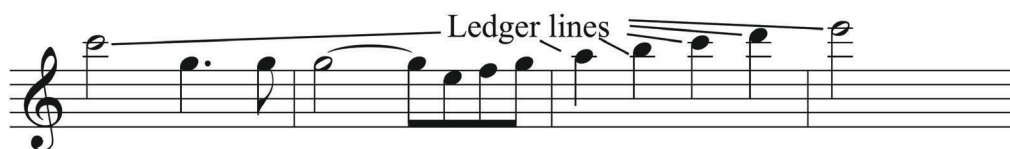
- The clef determines either G (treble) or F (bass) as a point of reference
- The seven letters A-G cycle in alphabetical order
- Brackets indicate cycles of eight—called Octaves



1.1

Ledger lines:

Ledger lines extend the staff adding lines for each pitch above or below the staff. Ledger lines are placed using the same vertical distance as the staff. Use only as many ledger lines as are needed.



The Grand Staff:

The grand staff is comprised of one treble and one bass staff. It is used for keyboard, and vocal music. The brace on the left hand side indicates that the staves are grouped. Barlines on a grand staff are drawn through both staves. C4 appears one ledger line above the bass clef, and one ledger line below the treble clef staff. These C's are the same pitch called middle C.



Octave:

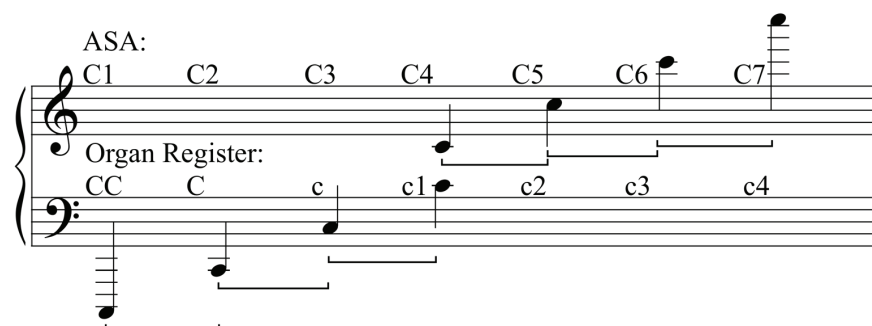
The cycle of the seven letters begins anew on the eighth pitch, the octave. The octave is a significant interval for determining range/register, and most scales fill an octave.

The example below shows pitches separated by an octave.

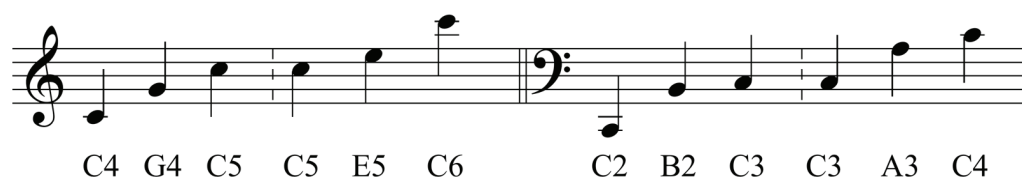


Octave Register Designation:

Labeling systems delineate octaves using specific letters and/or numbers. The 18th century system labeled octaves as they relate to the registers of the organ. The Acoustical Society of America (ASA) system labels the first octave as C0. ASA is commonly used in the U.S., and in computer applications for MIDI and digital audio.



Designations carry through the octave.



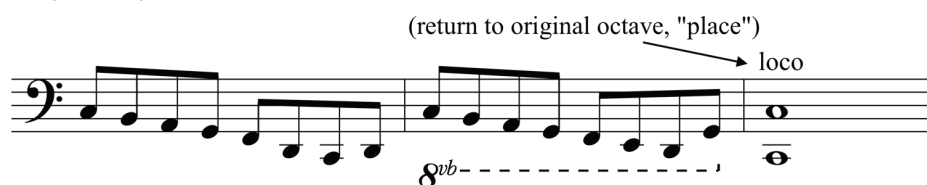
Ottava alta, Ottava bassa:

When music is written in the highest or lowest register for an extended period, the ottava alta (8va-one octave higher), or ottava bassa (8vb-one octave lower) symbols are used to facilitate easier reading.

Below, the first two measures are written at sounding pitch the latter use ottava alta placed above the staff to indicate that the measures are to be played one octave higher.



Ottava bassa is placed below the staff indicating that pitches are to be played an octave lower. The term loco (place) is used to tell the performer that the ottava symbol has been cancelled, and the music should now be played as notated. These symbols appear most frequently in keyboard music.



1.2

Objective: Students will identify pitches on the piano keyboard, learn enharmonic equivalents, and use the keyboard as a study aid (1.2).

The Piano Keyboard:

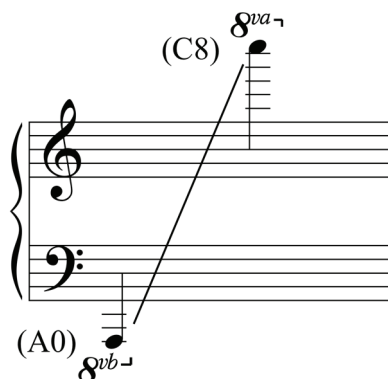
The piano is one of the most important instruments in western music. Its range is the widest of all acoustic instruments, and it is the favorite instrument of composers. Its physical layout facilitates a quick grasp of pitches, intervals, scales, harmonies, register, and musical relationships.

Keyboard Layout:

The example below shows the full range of the piano keyboard, eighty-eight pitches—over seven octaves. Octave designations are shown on the keyboard example below (C1-C8). Some of the keys on the piano are white others are black, note that the pattern of white and black keys is the same for each octave (C-C).

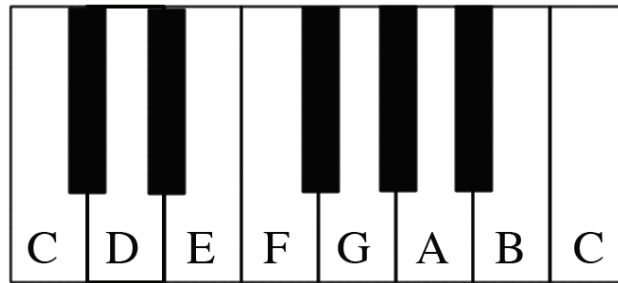


This example shows the written range of the piano on the grand staff—lowest to highest pitch, A0-C8.

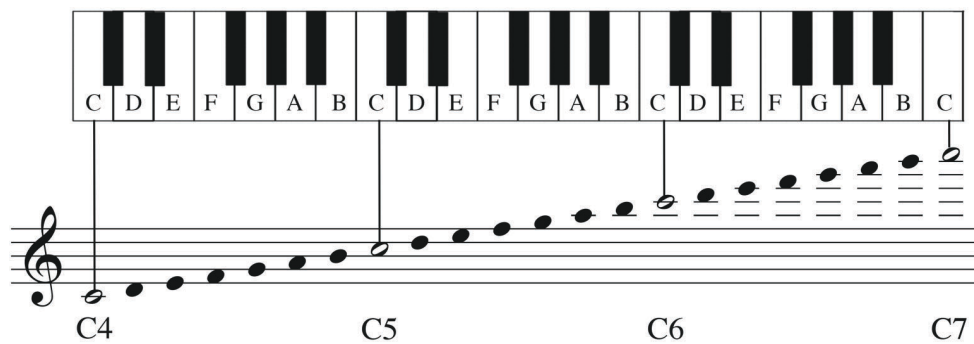


Using the Piano Keyboard to help understand pitch relationships:

In the following, pitch names have been added to the white keys of the keyboard. The distance between each key on the keyboard is called a step, or scale step. Notice that E-F and B-C have no intervening black keys; these scale steps are half-steps while all others are whole-steps.

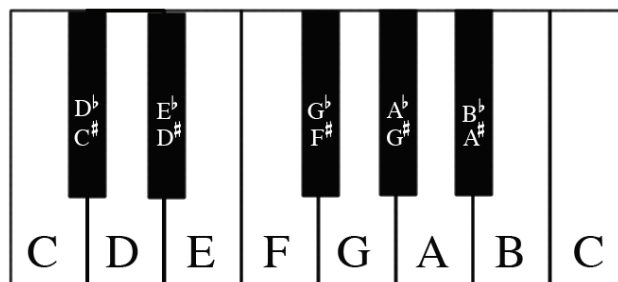


This example maps octaves on the treble staff to the piano keyboard. Note the order and arrangement of pitches is the same for each octave. Lower pitches are on the left, higher pitches on the right. The example shows scale steps from C4-C7. On the piano, Middle C (C4) is near the middle of the instrument.



Enharmonic Equivalents:

This example shows the names of all of the keys in one octave. Notice black keys are named with both sharped and flatted pitches. Any of these pairs (e.g. F# and Gb) are called enharmonic equivalents; pitches that sound the same but are spelled differently.



1.3

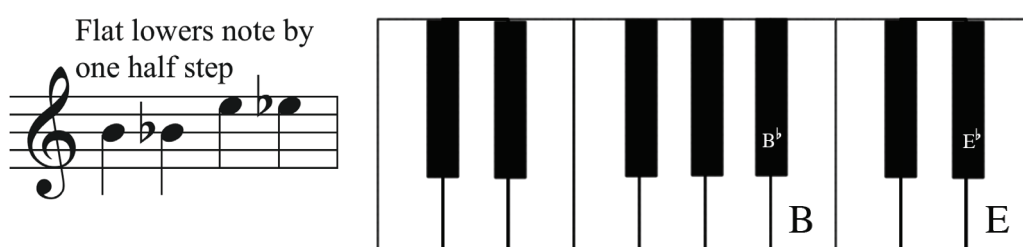
Objective: Students will learn accidentals and their use (1.3).

Accidentals:

Accidentals are symbols that alter a musical pitch raising or lowering it by as much as a whole-step. Accidentals include: flats, sharps, double flats, double sharps, and the natural sign. The term accidental also means a departure from a key, or key signature.

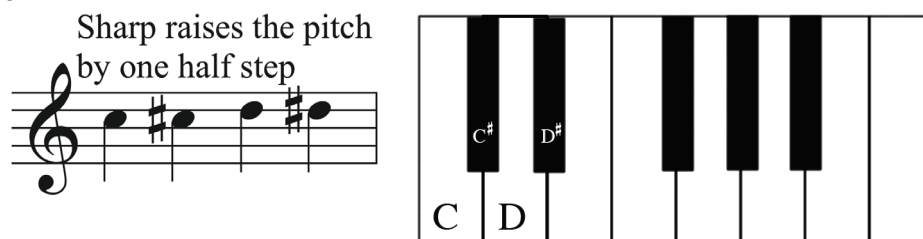
Flat: $\flat$

A flat symbol resembles a lower case b. The symbol lowers the pitch of the note it precedes by one half step. It is placed immediately before the pitch it alters on the same line or space.



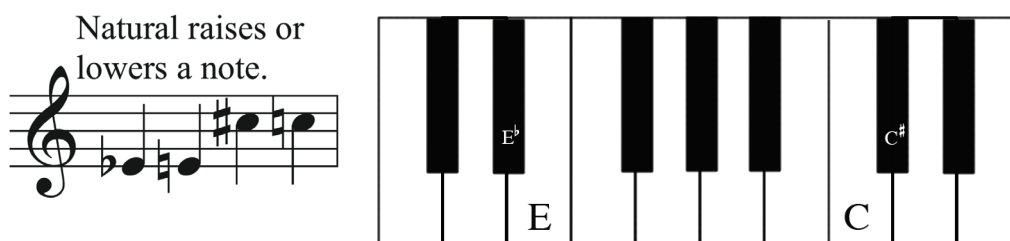
Sharp: $\sharp$

A sharp symbol resembles a number sign (#). The symbol raises the pitch of the note it precedes, by one half step. It is placed immediately before the pitch on the same line or space.



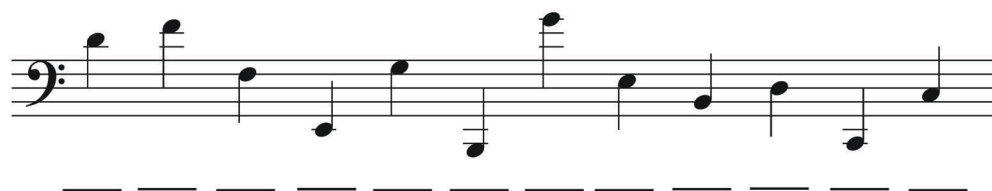
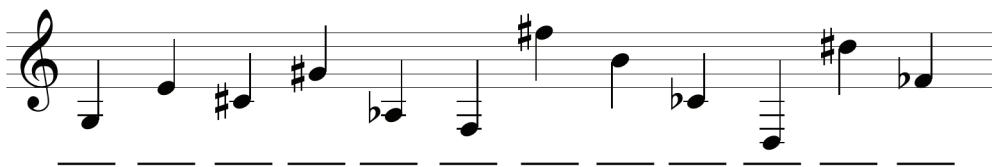
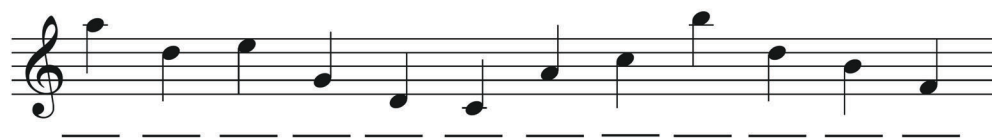
Natural Sign: $\natural$

The natural sign raises or lowers the note it precedes depending on the context. If it precedes a flatted note, the sign raises the flatted note by one half step, if it precedes a sharped note it lowers it by one half step.

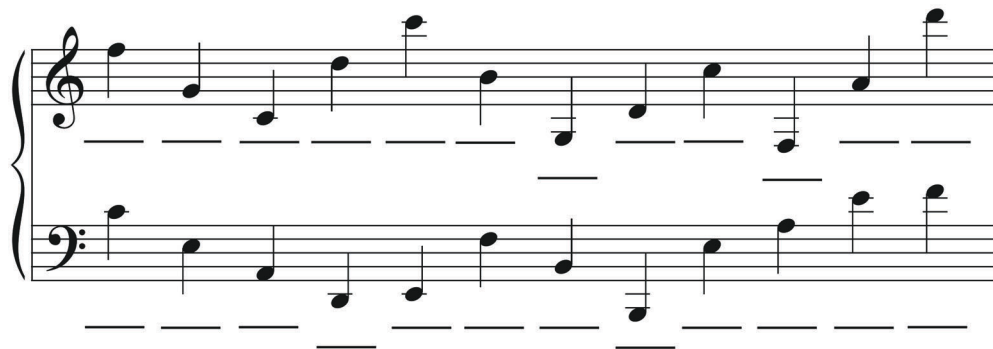


1.1-1.3 Exercises

Write the letter name for each pitch on the space provided.



1.1-1.3 Exercises



Write the ASA octave designations for each of the pitches below.

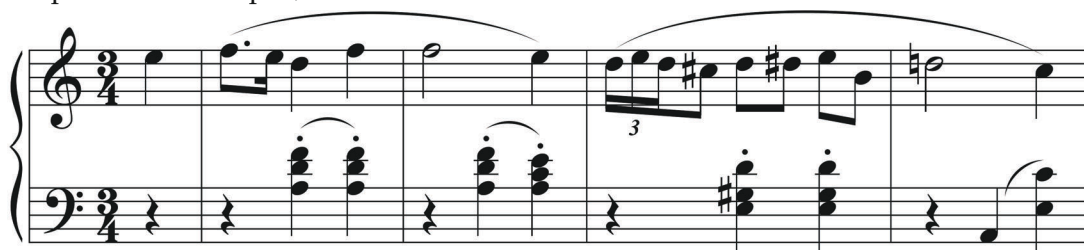


Identify pitches in the following excerpts:

Bach: Two Part Inventions #1



Chopin Mazurka Op. 7, no. 2



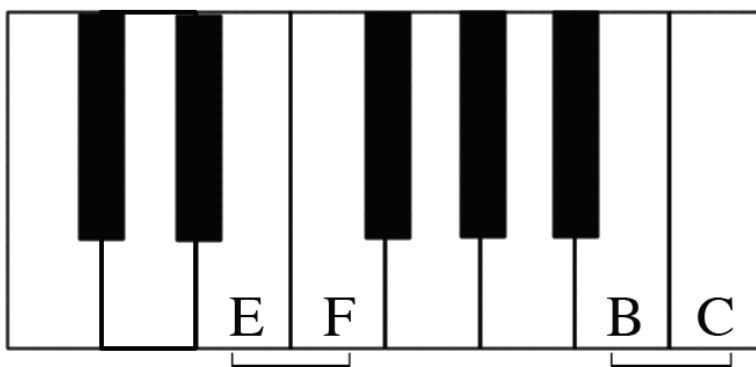
Objectives: The student will use the piano keyboard to understand half and whole-steps (1.2, 4, 19).

Steps:

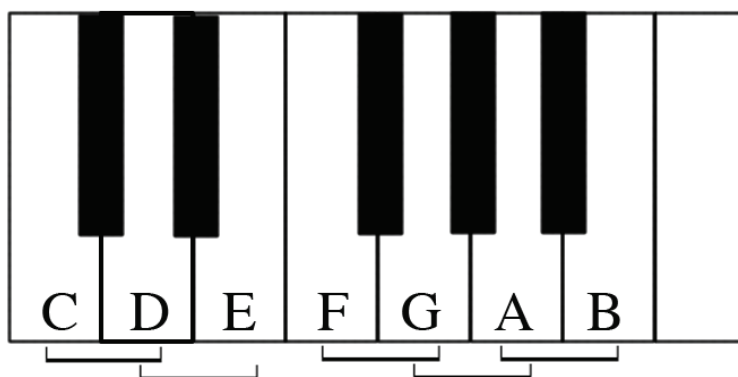
The distance between adjacent keys on the keyboard and adjacent pitches in the musical alphabet are called steps. For example: $F \rightarrow G$, $A \rightarrow B$, $E \rightarrow F$, or $B \rightarrow C$; are all steps, scale steps, or seconds. Some white keys are separated by black keys, others are not; seconds are comprised of either a half-step, or a whole-step.

Half Steps, Whole Steps:

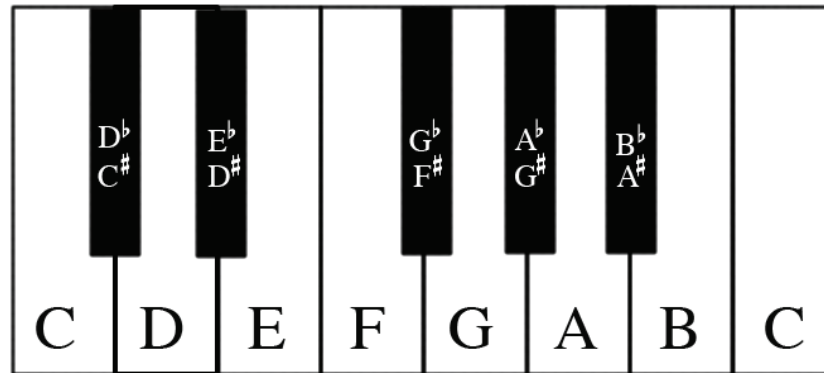
In western music the octave—eight steps—is further divided into 12 chromatic half-steps. Naturally occurring half-steps are between $E \rightarrow F$, and $B \rightarrow C$ —adjacent white keys. Others are obtained through the addition of accidentals: sharps or flats. A half-step is the smallest distance between pitches in the chromatic scale.



Steps between pitches separated by black keys on the keyboard—are called whole steps. These are shown below ($C \rightarrow D$, $D \rightarrow E$, $F \rightarrow G$, $G \rightarrow A$, and $A \rightarrow B$).

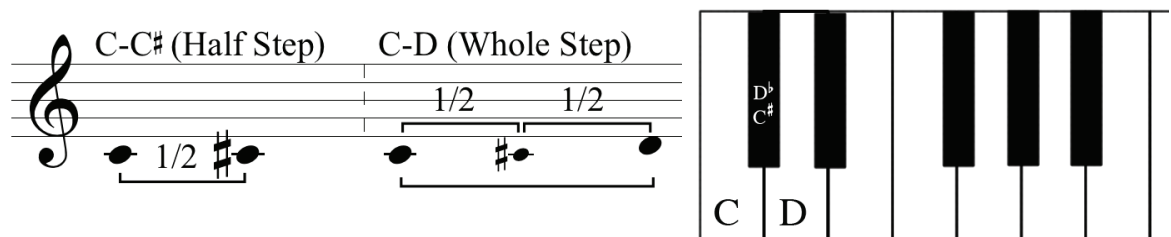


Adding the black keys, many more possibilities for half and whole-steps arise. New half-steps include a white key combined with an adjacent black key (e.g. $C-C\sharp$, $G-F\sharp$ etc.). New whole-steps include any two black keys, or black keys combined with white keys associated with natural half steps ($E-F$, $B-C$): $E\flat-F$, $E-F\sharp$, $B\flat-C$, $B-C\sharp$ for instance.



Half and Whole Step Size:

Half-steps are half the size of the whole-step. A whole-step is equivalent to two half-steps as is shown in the example below. Other names for the half-step are semitone, or minor second. Half-steps can either be diatonic; between letters of the scale (e.g. C♯-D, G-A♭), or chromatic, between chromatically altered version of the same pitch class (e.g. C-C♯, D-Db).

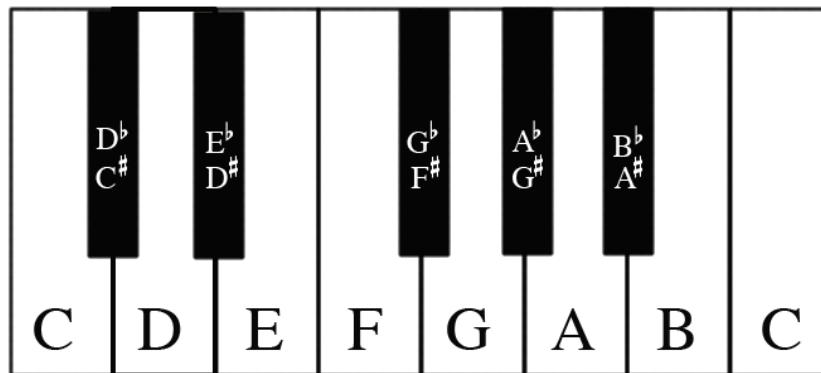


Seconds:

Half and whole-steps are both termed seconds—an interval between adjacent piano keys, or scale steps. Half-steps are termed minor seconds. Whole-steps are major seconds.

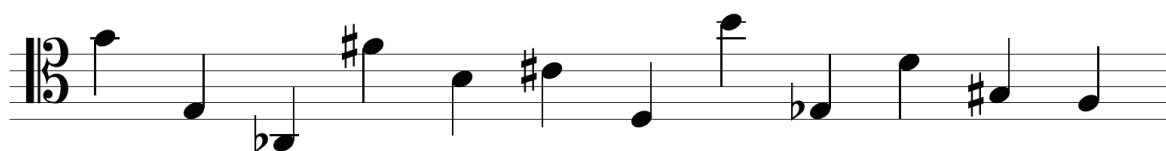
1.2-1.4 Exercises

Use the keyboard for the following:



Write the pitch:	
one half step above B	
one whole step below A ♭	
one half step above C ♯	
one whole step above G	
one half step below F	
one whole step above B ♭	
one half step below D ♯	
one whole step above A	
one half step above F ♯	
one whole step below E ♭	

Write pitches one half step above those given on the staff below. Use accidentals as necessary.



1.2-1.4 Exercises

Write pitches one half step below those given on the staff below. Use accidentals as necessary.



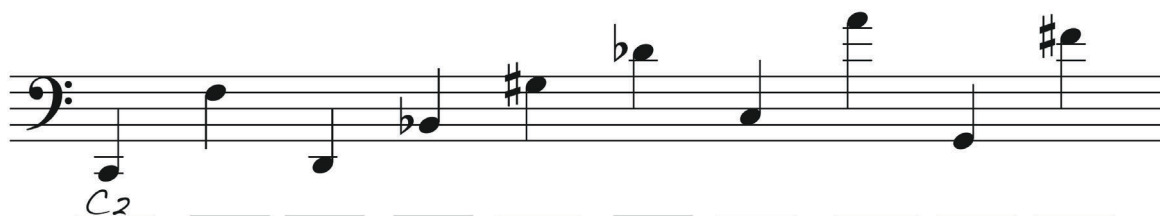
Write pitches one whole step above those given on the staff below. Use accidentals as necessary.



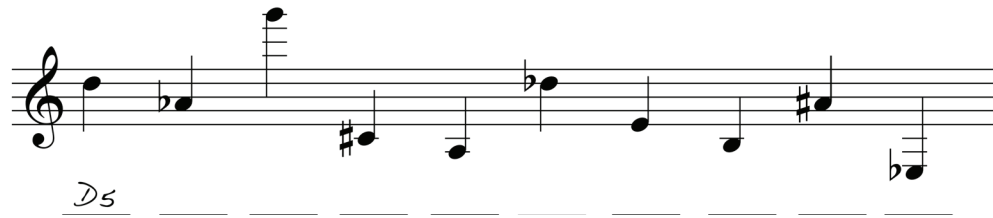
Write pitches one whole step below those given on the staff below. Use accidentals as necessary.



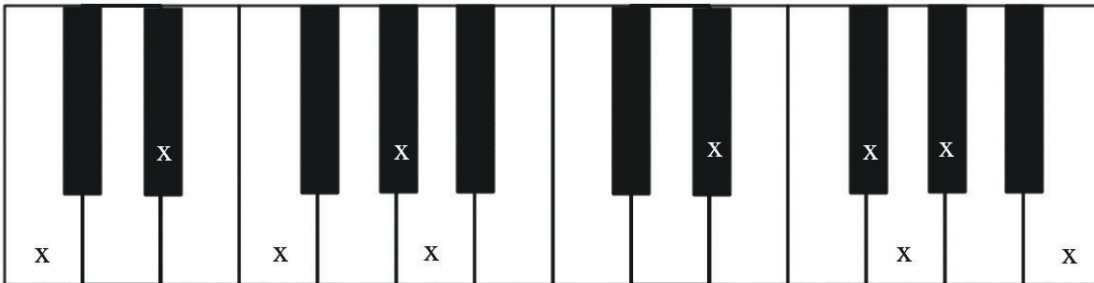
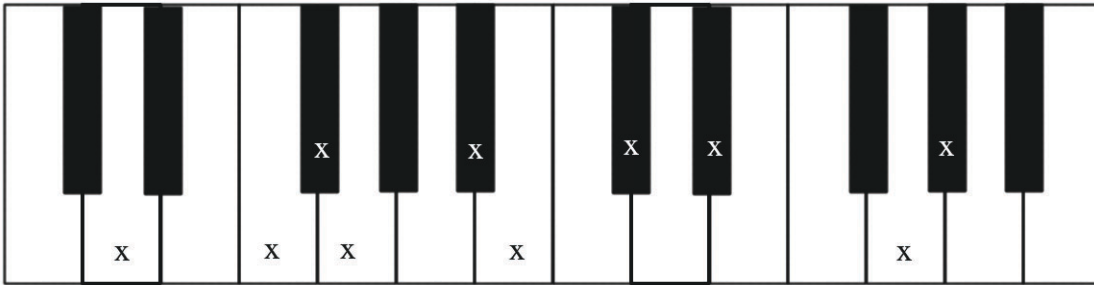
For each of the following write the pitch name and Octave Designation (C4 is middle C).



1.2-1.4 Exercises

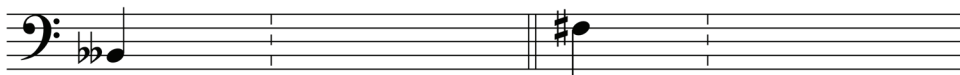
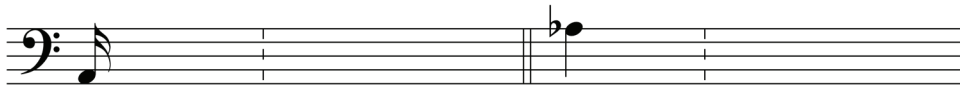


Draw a line between notes on the keyboard and the staff below.



1.2-1.4 Exercises

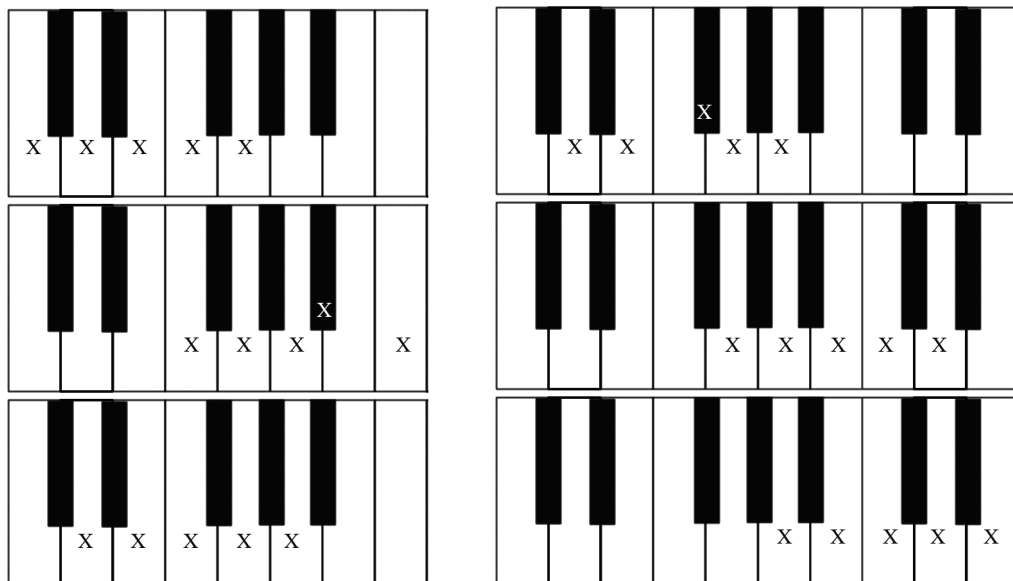
Given the first pitch, write enharmonic equivalents, including double flats, and double sharps when possible. There will be 1-2 solutions for each.



Identify the pitches in the following example writing the only the name of the pitch. Complete the exercise at a steady, quick pace.

1.2-1.4 Exercises

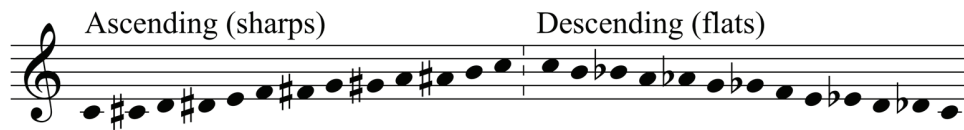
For each of the keyboard diagrams below, write the names of the pitches on the keys.



Objective: Students will understand the structure of the chromatic scale, how to write it, and enharmonic equivalence. (1.5)

Chromatic Scale

The chromatic scale contains twelve pitches where each member is separated by a half-step. Write the scale using sharps for the ascending version, and flats for the descending version.



Enharmonic Equivalents:

In the chromatic scale above, flats and sharps are used to represent pitches that are the same sound. Pitches with the same sound, but different spellings are called enharmonic equivalents. The example shows enharmonic equivalents.

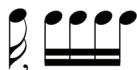


1.6

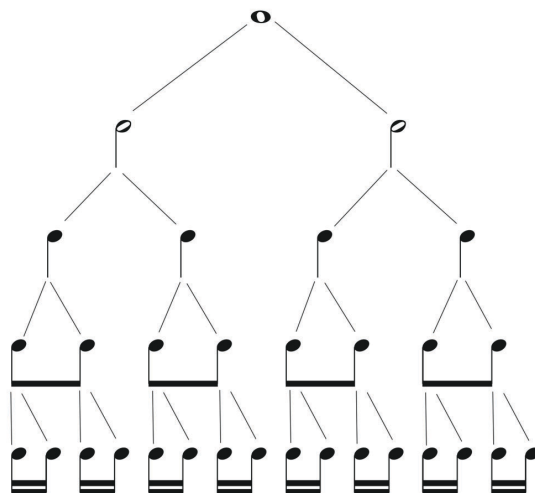
Objective: Students will learn rhythmic values and their corresponding rests, barlines, ties and augmentation dots (1.6-7).

Notation of Rhythm:

Rhythmic symbols express divisions of the whole note. The chart below shows the whole note and some of its most common divisions in units of pulses/beats.

NOTE VALUE	SYMBOL	NUMBER OF BEATS	DESCRIPTION
Whole-note		Four beats	An oval with darkened sides.
Half-note		Two Beats, $\frac{1}{2}$ of a Whole-note.	A slanted oval note head with a stem going up or down.
Quarter-note		One Beat, $\frac{1}{4}$ of a Whole-note.	A filled in slanted oval with the stem going up or down.
Eighth-note		$\frac{1}{2}$ of One Beat, $\frac{1}{8}$ of a Whole-note.	A filled in slanted oval with the stem going up or down. Eighth notes appear as single pitches with a flag, or in groups beamed together.
Sixteenth-note		$\frac{1}{4}$ of One Beat, $\frac{1}{16}$ of a Whole-note.	A filled in slanted oval with the stem going up or down. Sixteenth notes appear as single pitches with two flags, or in groups beamed together.
Thirty second-note		$\frac{1}{8}$ of One Beat, $\frac{1}{32}$ of a Whole-note.	A filled in slanted oval with the stem going up or down. Thirty-second notes appear as single pitches with three flags, or in groups beamed together.

The following shows the relationship between note values graphically. At each level the proportion between note values is 2:1. Note values may be divided by other factors such as 3, 5, or 7. The decreasing of note values by a common factor (1:2) is called diminution; increasing them by a common factor (2:1) is called augmentation.



Flags and Beams:

Flags and Beams are used for rhythmic values smaller than a quarter note.

Flag:

Beginning with eighth notes, Flags are used to show the note value; one Flag for an eighth note, and two for the sixteenth note and so on for shorter values.

Beam:

Note values smaller than a quarter note are often beamed together to represent beats in the time signature. It is common that eighths or sixteenths be beamed in groups of two or four each summing respectively to a quarter note.

Note Values Flagged or Beamed



Eighth notes each containing one Flag are Beamed with one horizontal beam connecting the two stems.



Sixteenth notes each containing two Flags are Beamed with two horizontal beams connecting the four stems.

In vocal music, flagged notes are used for each syllable of the text. In practice, music may or may not follow this convention. In the example below, a single eighth note precedes a measure. In this case, since the eighth note is the last one in a measure a flag is used. All other eighth notes are beamed to the value of one quarter note—the beat indicated by the meter.



Rests:

Rhythms discussed earlier have corresponding rests. Rests signify inactivity/silence for a specified number of beats. Performers mark time indicated by counting beats.

NOTE VALUE	SYMBOL	REST	
Whole-note			Placed underneath the second line from the top. Centered in the measure. Whole Rests are four beats in length, but in practice a Whole Rest is used to fill empty measures regardless of the Time Signature.
Half-note			The Half Rest is similar in shape to the Whole Rest, but it is placed on top of the staff's centerline. A Half Rest is two beats in length.
Quarter-note			The Quarter Rest is one beat in length.
Eighth-note			An Eighth Rest has a hooked feature that resembles a single flag.
Sixteenth-note			The two hooks of the Sixteenth Rest represent the flags of a single sixteenth note.

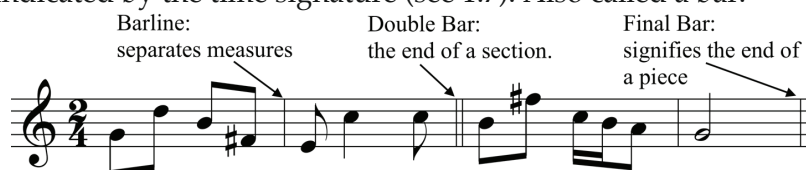
Barline:

A vertical line placed on a musical staff to delineate groups of beats or measures.

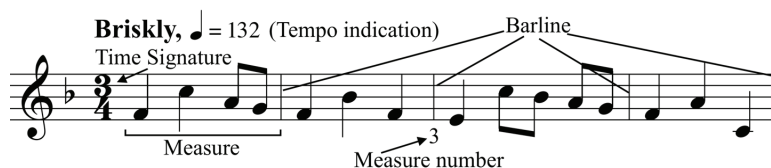
Barlines can take several forms to signify the end of a measure, section, or musical work as is shown in the example below.

Measure:

A segment of a musical staff separated by a barline and containing the same number of beats as indicated by the time signature (see 1.7). Also called a bar.



In the following the time signature indicates three beats per measure. Each group of three beats is called a measure, or bar. Barlines separate groups of three beats. A measure number is placed at the beginning of measure #3. Measure numbers and rehearsal markings aid performers locate excerpts quickly in rehearsal.



Ties and Augmentation dots:

Tie:

A curved line used to connect two note values and increase their duration to the sum of the two tied values. Ties connect notes of the same pitch (i.e. on the same line or space) within the measure or over the barline.



Augmentation Dot:

A dot occurring after, and slightly above the note head. An augmentation dot increases the duration of the preceding note value by $\frac{1}{2}$.



Dotted quarter note is equivalent to a quarter tied to an eighth note and is the duration of $1\frac{1}{2}$ quarters, or three eighths.



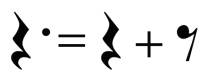
Dotted half note is equivalent to a half tied to a quarter and is the duration of $1\frac{1}{2}$ half notes, or three quarters.

In some cases a double augmentation dot may be used. The double augmentation dot increases the duration half the value of the first augmentation dot:



When augmentation dots and ties are used, the beats of the time signature should remain clear.

Augmentation dots work in the same manner for rests.



Dotted quarter rest is equivalent to a quarter and eighth rest and is the duration of $1\frac{1}{2}$ quarters, or three eighths.

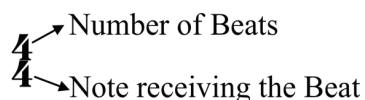


Dotted half rest is equivalent to a half tied to a quarter and is the duration of $1\frac{1}{2}$ half notes, or three quarters.

Objectives: Students will identify and construct: time signatures for simple and meters (1.7)

Time Signature:

A time signature is a symbol consisting of two vertically aligned numbers where the upper number indicates the number of beats in a measure, and the bottom, the note value that receives the beat.



The term time signature is often used synonymously with meter. Time signature refers to the notational symbol. Meter refers to the grouping of pulses.

Pulse:

The discernable succession of equal beats in music.

Meter:

The grouping of musical pulses through the use of accented and unaccented beats.

Meters where two pulses are grouped are called duple (accented+unaccented), those with three are called triple (accented+unaccented+unaccented), four pulse meters are quadruple and so on.

1. Duple $\frac{2}{4}$

2. Triple $\frac{3}{4}$

3. Quadruple $\frac{4}{4}$

Simple Meters:

Simple meters are meters where the beat is divided into two equal parts. The example shows a simple duple meter, beat = quarter note, and eighth notes divide the beat.



The most common simple meters include two, three, and four beats, known respectively as duple, triple, and quadruple meters.

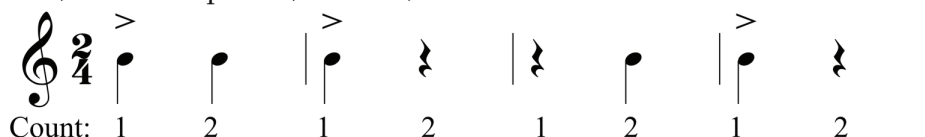
Simple Duple Meter:

In a simple duple meter, an accented beat (>) groups pulses in twos as is shown below (quarter note beat). Accented beats are also called strong beats, unaccented beats are called weak beats.

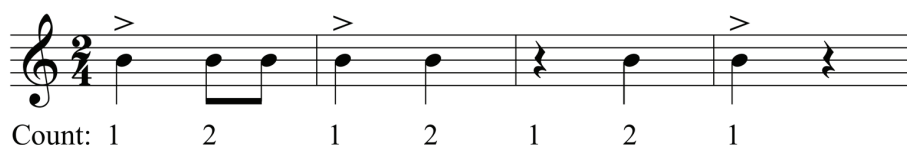


Downbeat/Upbeat

Accented beats are called downbeats. In a simple duple meter, there is one downbeat (beat one) and one upbeat (beat two).



Notice how an upbeat propels the rhythm into the downbeat.



Beat Division:

The lower of the two numbers in the time signature indicates the note value receiving the beat. In simple meters it is divided into two equal parts. The first part of the division is "on the beat," the second half "off the beat." Divisions of the beat are beamed to make the beat easily recognizable.



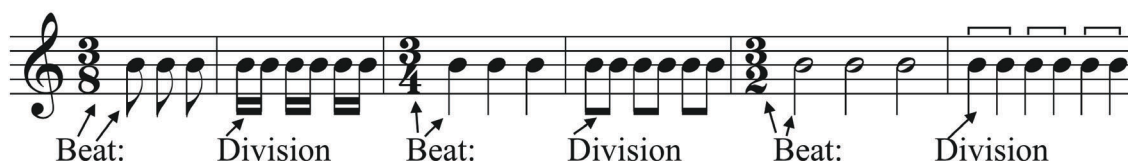
Simple Triple Meter:

In a simple triple meter, an accented beat (>) groups pulses in threes as is shown below (quarter note beat). In simple triple meter the first beat is strong (accented) while the second and third beats are weak (unaccented).



Beat Division:

Beat Division for triple meter is shown below. In simple meters beats are divided into two equal parts.



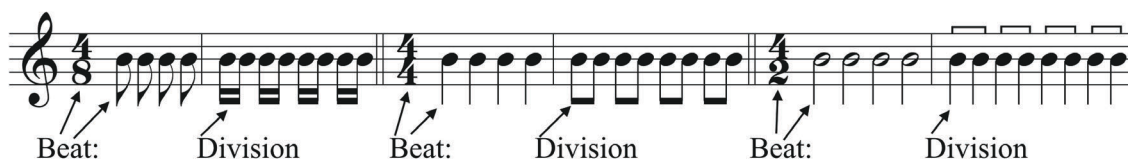
Simple Quadruple Meter:

In a simple quadruple meter, an accented beat (>) groups pulses in fours as is shown below (quarter note beat). In simple quadruple meter, the third beat is relatively accented, or a secondary strong beat (-).

1-strong downbeat + 2-upbeat, 3-relatively strong beat + 4-upbeat



Beat Division:



Complete the following table:

Time Signature	Meter (duple, triple, quadruple)	# of beats in a measure	Note value that receives a beat.
$\frac{2}{4}$	Duple		
	Triple		
$\frac{2}{2}$		2	
	Quadruple		
$\frac{3}{4}$			
$\frac{4}{8}$	Quadruple		
$\frac{2}{8}$		2	
	Triple		
		4	

Time Signature Abbreviations:

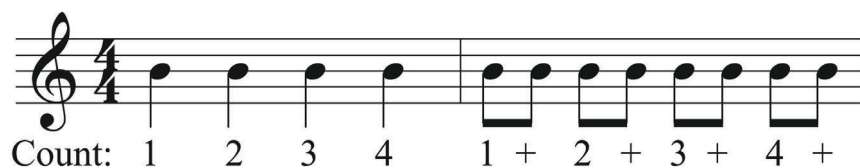
Some of the most commonly used time signatures have abbreviations that substitute for the numerical time signature. Among these are:

Time Signature	Symbol	Meaning
$\frac{4}{4}$	C	Common Time
$\frac{2}{2}$	C	Cut Time (alla breve)

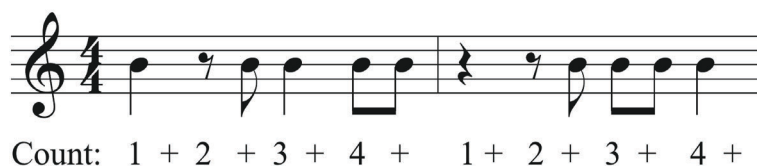


Counting Divisions:

Learn to count divisions and subdivisions of beats. Divisions are counted using "+" (spoken: "and") between beats. Count: "one and-two and-three and-four and."

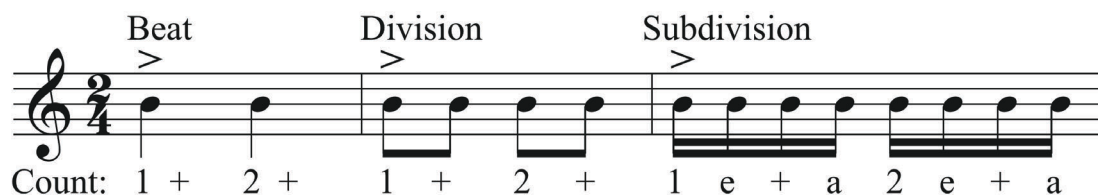


If divisions of the beat are present in a measure, count divisions for every beat.



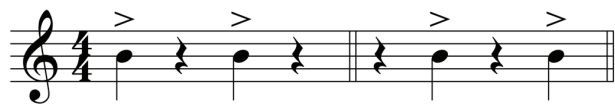
Beat Subdivision:

When a beat division is further divided, the beat is subdivided. The following shows divisions and subdivisions in a simple duple meter. Subdivisions and the counting of subdivisions is the same regardless of the meter. To count the subdivision, the division "1 +," is further divided: "1 e + a" (spoken: "one-ee-and-uh").



Syncopation:

Up till now most of the rhythms we have studied have emphasized the beat structure (accented/unaccented) of the meter. When rhythms shift the emphasis (accent) onto weak or off beats this is called syncopation.

Syncopation	Description
1.  Count: 1 2 3 4 1 2 3 4	The accenting of weak beats within the measure. This syncopation (m. 2) is used frequently in popular music. Listen to the metric placement of the snare drum in most drum beats.
2.  Count: 1 2 3 4 1 2 3 4	Here are two more syncopations using the weak beats of a Simple Quadruple Meter.
3.  Count: 1 + 2 + 1 + 2 +	Divisions can also be used. Here the Off beats are used to create syncopations that are diminutions of example 2
4.  Count: 1 + 2 + 3 + 4 +	Here the divisions of example three appear as syncopations in a simple quadruple meter.
5.  Count: 1 e + a 2 e + a	Subdivisions may also be used. Syncopations are rhythms that place emphasis on weak, or off beats.

1.6-1.7 Exercises

Identify the number of beats in each measure and note value that gets the beat.

Time Signature	# of Beats in the Measure	Note Value that receives the beat.
$\frac{4}{4}$		
$\frac{2}{4}$		
$\frac{3}{4}$		
$\frac{2}{2}$		
$\frac{4}{8}$		
$\frac{3}{16}$		
$\frac{2}{8}$		
$\frac{1}{8}$		
$\frac{3}{8}$		

Complete the following table:

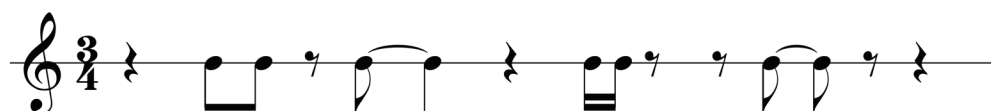
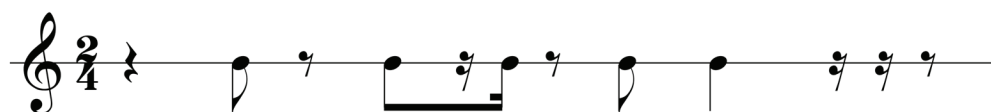
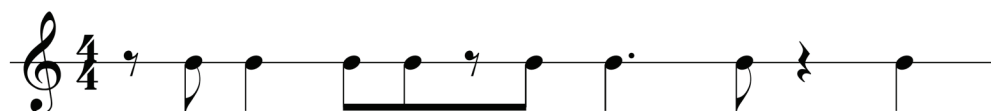
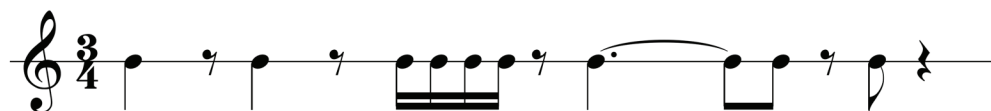
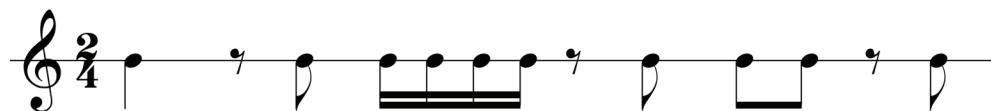
Time Signature	Meter (duple, triple, quadruple)	# of beats in a measure	Note value that receives a beat.
C			
	Duple		
$\frac{2}{2}$		2	
$\frac{4}{16}$			
$\frac{3}{4}$			
	Quadruple		
$\frac{2}{8}$		2	
	Triple		
c			

1.6-1.7 Exercises

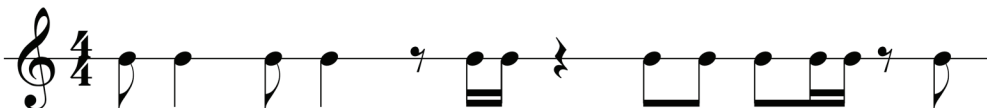
Write the note value that receives the beat, and its division for each measure below:



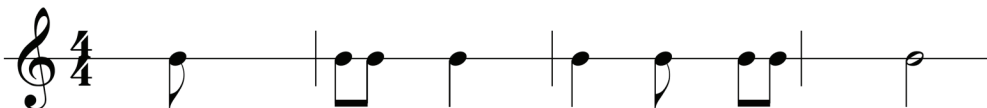
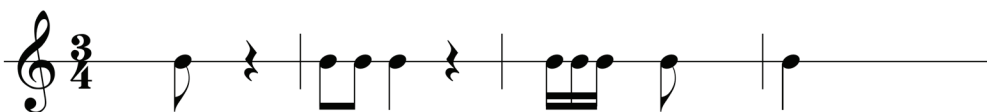
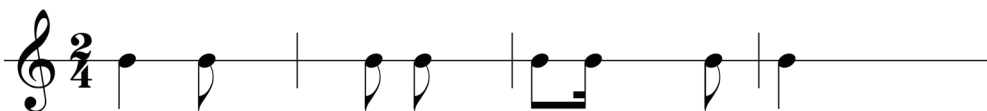
Place barlines in the following examples so to reflect the number of beats indicated by the time signature.



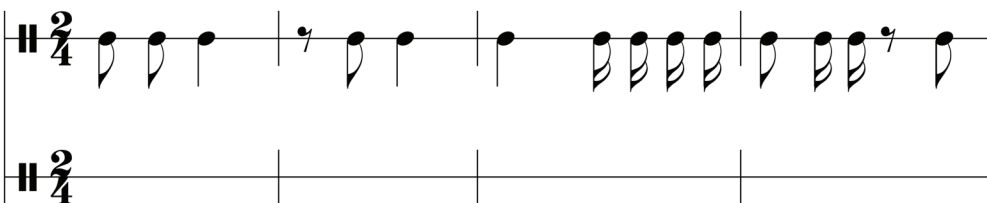
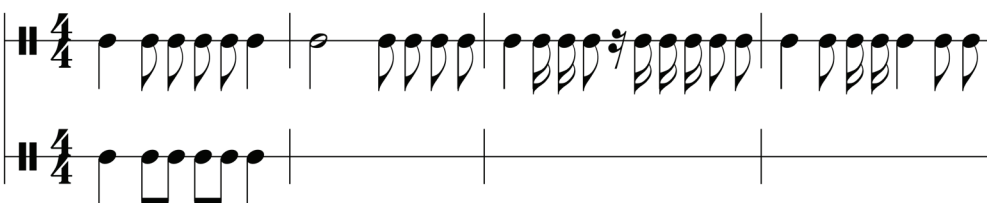
1.6-1.7 Exercises



Add rests to fill out measures in the following.



Beam eighth and sixteenth notes in the following examples to a quarter note beat. Use a flag only when necessary.



1.6-1.7 Exercises

Beam the notes given so that they reflect the beat structure of the time signature. Your solution may require dotted notes, or ties, and beats may be pushed to the next bar; do not reorder note values.

Solution:

Solution:

Solution:

Solution:

In the blank measures supplied write rhythms and rests using the *Augmentations* or *Diminutions* as indicated.

Double Half Quarter

Double Half Quarter

Double Half Quarter

1.6-1.7 Exercises

Write the augmentation and diminution of the following rhythm.



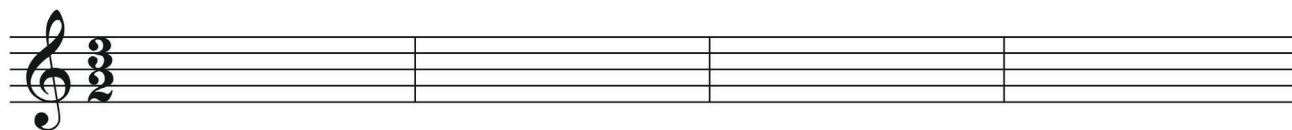
Augmentation:



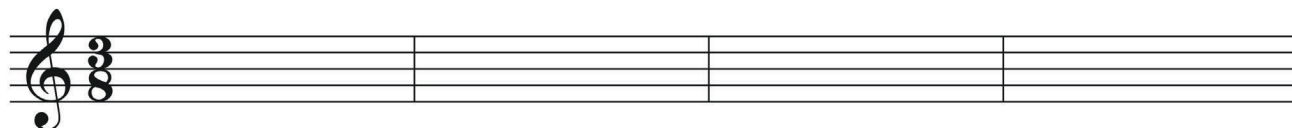
Diminution:



Augmentation:



Diminution:



Objective: Students will identify and construct major scales in different keys (1.8, 9).

Scale:

The term scale comes from the latin *scala*, meaning ladder; in music it implies a structure comprised of steps ascending and/or descending filling out an octave. Most scales use a sequence of pitches where each member of the musical alphabet appears only once. That being said, there are many scales with five to twelve members. The diagram below shows scales and modes for the key of C.

Scale and Mode Chart:

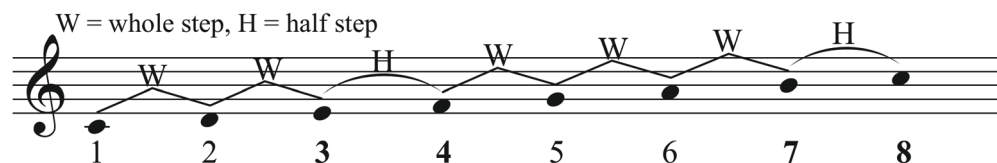
Alphabetic Rotation:	Mode	Common Name	Correlation
C-D-E-F-G-A-B-C	Ionian	Major Scale	
D-E-F-G-A-B-C-D	Dorian		Natural Minor scale with #6 scale degree
E-F-G-A-B-C-D-E	Phrygian		Natural Minor scale with b2 scale degree. Also the mirror inversion of the Major scale
F-G-A-B-C-D-E-F	Lydian		Major scale with #4 scale degree
G-A-B- C-D-E-F-G	Mixolydian		Major scale with b7 scale degree
A-B-C-D-E-F-G-A	Aeolian	Natural Minor Scale	
B-C-D-E-F-G-A-B	Locrian		

Major Scale:

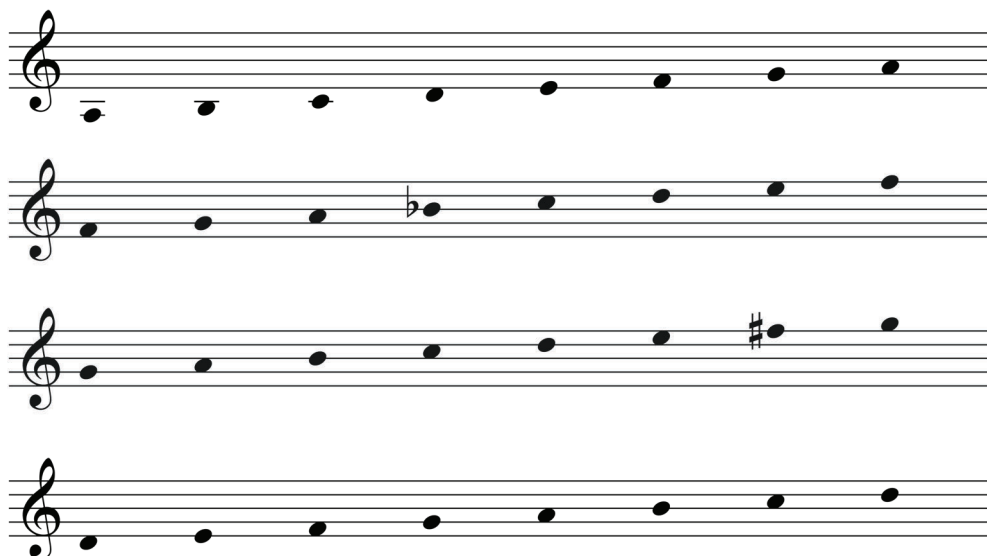
The diagram below shows one octave of the musical alphabet as they are mapped to the keyboard white keys from C-C. For this scale, C is called the tonic, and the scale is the key of C.



Each Major scale employs all of the letters of the musical alphabet (A-G) and the same ordering of whole and half steps. Half-steps occur between scale members 3-4, 7-8, and whole-steps appear between all other members of the scale.



Based on the sequence of whole and half steps, which of the following are major scales (locate half steps then whole steps)?

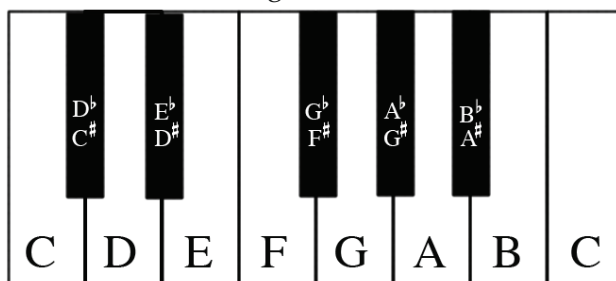


Writing Major Scales:

To write the major scale beginning on a tonic other than C, map the sequence of whole and half-steps from the C major scale onto a sequence using the new tonic. Here is a strategy that can be used to transpose the C major scale to other keys.

- A. Write a scale using letters from the musical alphabet in sequential order. The first and last pitch will be the same and should complete an octave (eight pitches). All seven letters of the musical alphabet are used once. The repetition of the tonic completes the scale.
- B. Add accidentals to generate half-steps between scale members 3-4, 7-8.
- C. Add accidentals so that whole-steps occur between all other members.

Use the chromatic keyboard to assist creating new scales:



1. G Major Scale:

A. Write the sequence of letters beginning and ending with the same letter. For example:

G-A-B-C-D-E-F-G

B. Naturally occurring half steps: B-C, E-F occur between members 3-4, and 6-7.



C. Add F♯ to shift the second half step from members 6-7, to members 7-8.



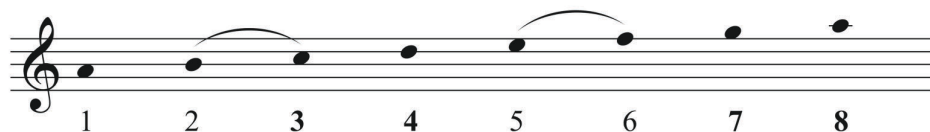
D. Check all other members to confirm that they are whole steps. This process generates the G Major Scale (G-A-B-C-D-E-F♯-G), or the scale for the Key of G Major.

2. A Major Scale:

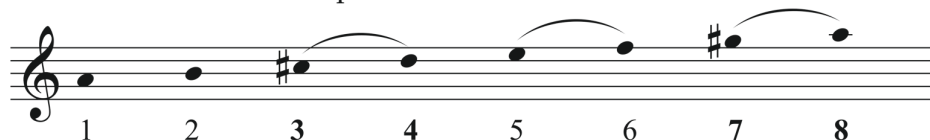
A. Write the sequence of letters beginning and ending with the same letter. For example:

A-B-C-D-E-F-G-A

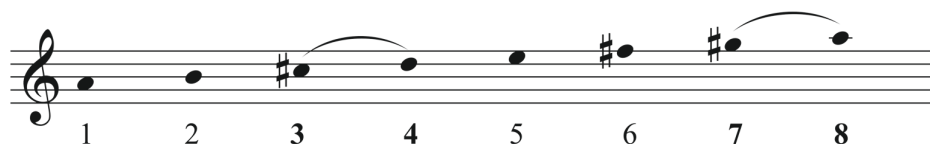
B. Naturally occurring half steps: B-C, E-F occur between members 2-3, and 5-6.



C. Add C♯, G♯ to shift half steps to members 3-4, and 7-8.



D. Check all other members to confirm that they are whole steps. One half step remains between 5-6, add F♯. Why not G♭? Use each letter only once (except for 1, 8).



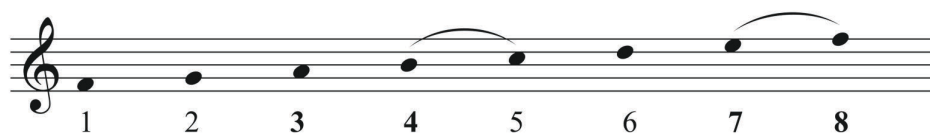
This process generates the A Major Scale (A-B-C $\sharp$ -D-E-F $\sharp$ -G $\sharp$ -A), or the scale for the Key of A Major.

F Major Scale:

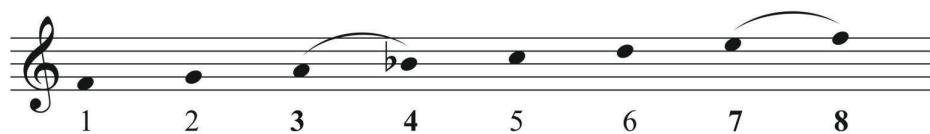
A. Write the sequence of letters beginning and ending with the same letter. For example:

F-G-A-B-C-D-E-F

B. Naturally occurring half steps: B-C, E-F occur between members 4-5, and 7-8.



C. Add B $\flat$ to shift the first half step from members 4-5, to members 3-4.



D. Check all other members to confirm that they are whole steps.

This process generates the F Major Scale (F-G-A-B $\flat$ -C-D-E-F), or the scale for the Key of F Major.

Write Transpositions for D, E, and B:

Follow all steps, especially the last to confirm that all members except 3-4, 7-8 are related by a whole step. Use sharps for the examples below.

D:	
E:	
B:	

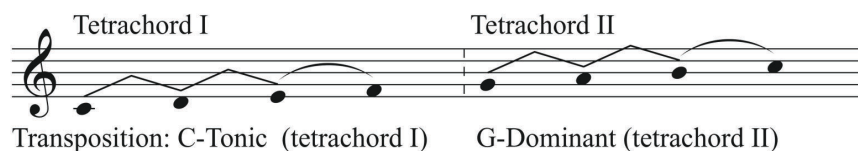
Tetrachords:

Every Major Scale will use this ordering of whole and half steps:

W-W-H--W--W-W-H

The major scale can be thought of as the combination of two tetrachords each having an identical sequence of whole and half-steps, or an identical interval structure.

The example shows tetrachords of the C Major Scale. The C Major scale is generated by transposing its first tetrachord from C to G.



This is important for several reasons:

1. Many scales can be generated by combining common tetrachords.
2. The transposition of tetrachords used to generate the Major Scale—between the first and fifth note of the scale—is an important musical structure in and of itself. The first note of the scale is called the tonic, the fifth note the dominant.

The Major Pentachord:

The first five notes of the scale, the Major pentachord, is an important structure to memorize for each key and will be increasingly useful in the early stages of your training.

1. The example below shows the major pentachord—the first five notes of a C major scale.
2. In the second measure, the 1-3-5 notes are shown. These are the notes of the tonic triad.
3. The last measure shows the pentachord transposed to the fifth note of the scale, or on the Dominant. The interval structure is the same for both pentachords.



Objective: Students will construct and identify key signatures for Major keys and learn the names of pitches in the Major Scale (1.9)

Key:

When a piece of music uses one scale it is in a key, or uses a diatonic scale (the notes within one key). Pitches in the key have names that specify their relation to the tonic.

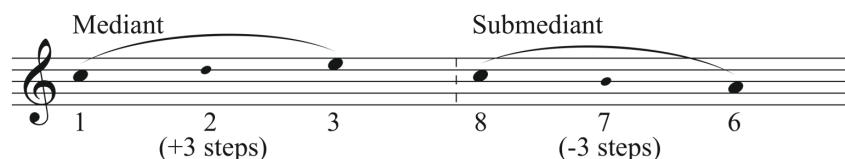
Scale Degree Names in the Diatonic Scale:

The table below shows scale degree, and its functional name.

STEP/DEGREE	FUNCTIONAL NAME	DESCRIPTION
1	TONIC	Keynote of the scale
2	SUPERTONIC	Above the tonic
3	MEDIANT	The pitch that is three steps above the tonic, and mid-way between tonic and dominant
4	SUBDOMINANT	The pitch five steps below the tonic.
5	DOMINANT	The pitch five steps above the tonic.
6	SUBMEDIANT	The pitch a third below the tonic.
7	LEADING TONE	Leads to the tonic.
8	TONIC	Keynote of the scale

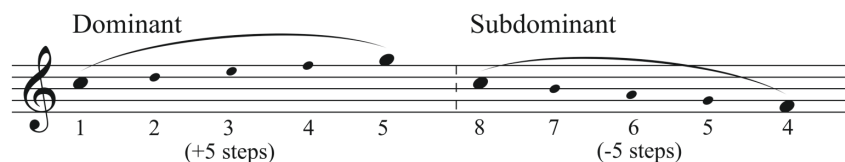
Several of the functional names relate tones above and below the tonic. The first, mediant, submediant refer to the third above (mediant) and the third below (submediant) the tonic, the third and sixth scale degrees.

- Mediant = 1 (tonic)→3 (mediant), +3 steps or ascending third
- Submediant = 8 (tonic)→6 (submediant), -3 steps or descending third



The dominant (the fifth above) and the subdominant (the fifth below)

- Dominant = 1 (tonic)→5 (dominant), +5 steps or ascending fifth
- Subdominant = 8 (tonic)→4 (subdominant), -5 steps or descending fifth



Complete the table below:

STEP/DEGREE	FUNCTIONAL NAME	SOLFEGE SYLLABLE
1		
	MEDIANT	
		re
		ti
	SUBDOMINANT	
6		
		fa
5		
	SUBMEDIANT	
		sol
	LEADING TONE	
2		
	TONIC	

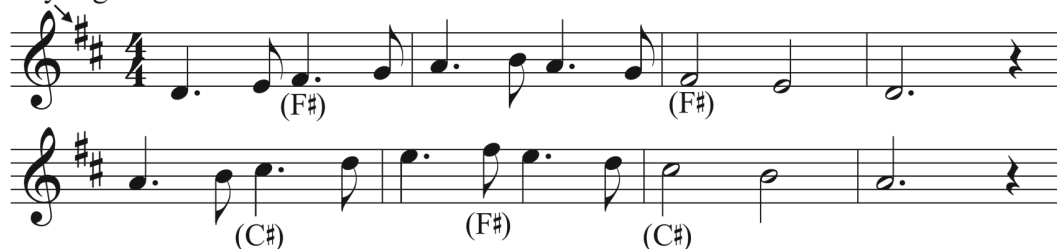
Key Signatures:

Key signatures are formed of sharps or flats appearing on the staff next to the clef.

When a key signature is used, sharps or flats appearing on staff lines or spaces are active for the entire musical work unless they are cancelled by accidentals or a new key signature.

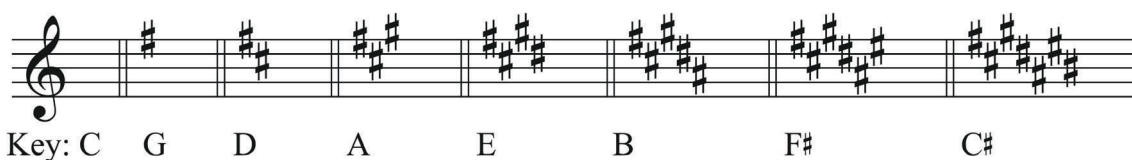
Below the key signature (a sharp on the fifth line, and third space) indicates that all F's and C's are "sharp." The key signature appears on each staff.

Key Signature: F# and C#



Sharp Keys (The order of Sharps is: F, C, G, D, A, E, B—each an interval of a fifth apart):

To determine the key implied by a sharp key signature, go one half step above the last sharp in the signature, this pitch will be the key implied by the key signature.





Key: C G D A E B F# C#



Key: C G D A E B F# C#

For sharp keys written in tenor clef, sharps are written ascending, rather than descending, as is the case for all other clefs. If sharp keys were to be written in the usual fashion a ledger line would need to be used for G# (the third sharp in the sequence). Accidentals used in key signatures always appear on the lines or spaces of the five line staff.



Key: C G D A E B F# C#

Flat Keys (The order of Flats is: B, E, A, D, G, C, F—each an interval of a fourth apart):

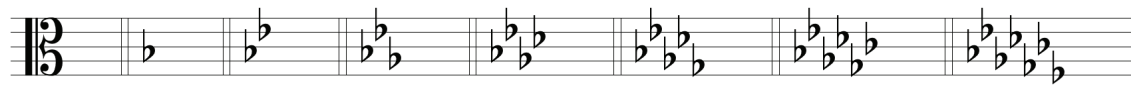
To determine the key implied by a flat key signature, the last flat in the signature is the fourth note in the scale, or for flat keys with two or more flats, the second to last flat indicates the key.



Key: C F B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$ C $\flat$



Key: C F B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$ C $\flat$



Key: C F B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$ C $\flat$

Flats on tenor clef are the same as other clefs for flat keys.

Mnemonic Devices:

Use these mnemonic devices to help you remember the order of sharps and flats

This acrostic, a sentence that can be spoke forward and reverse, gives both the order of sharps and flats:

Order of Sharps: **F**ather **C**harles **G**oes **D**own **A**nd **E**nds **B**attle

Order of Flats: **B**attle **E**nds **A**nd **D**own **G**oes **C**harles **F**ather

Or try these:

Order of Sharps: **F**at **C**ats **G**o **D**own **A**lleys **E**ating **B**irds

Order of Flats: **B**EAD **G**o **C**atch **F**ish

Complete the following by writing the name of the key on the blanks provided:

Write the key signature and indicated pitch from the scale for each of the following:

Leading tone 5 Subdominant submediant 4 3

E $\flat$ G B D $\flat$ F $\sharp$ C $\sharp$

4 Subdominant Mediant 6 submediant 5

B $\flat$ E F D A A $\flat$

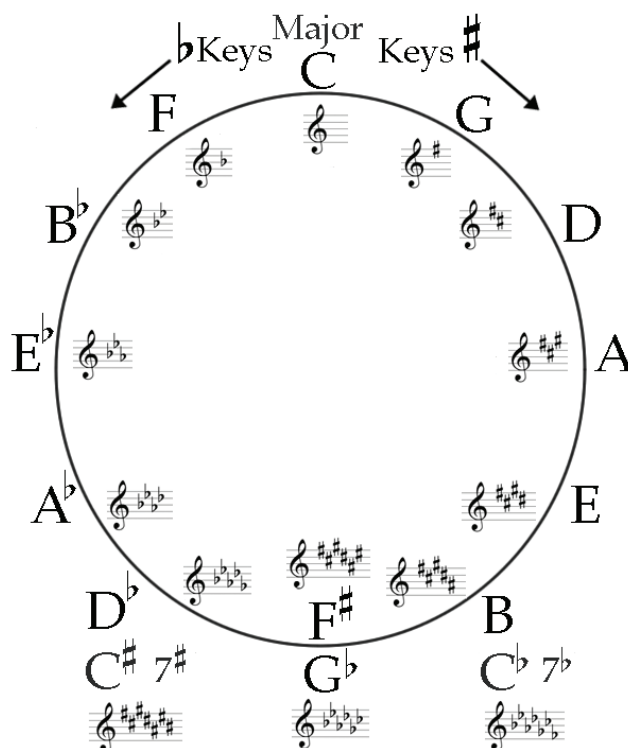
Objective: Students will use the circle of fifths to identify key signatures and musical relationships (1.10).

The Circle of Fifths:

The circle of fifths is a diagram used for identifying key signatures, and other important relationships. As one proceeds clockwise around the circle, each key is related to the previous by the interval of a fifth which is equivalent to five scale steps.

Fifth	Scale Steps (1-5)
C-G	C-D-E-F-G
G-D	G-A-B-C-D
D-A	D-E-F [#] -G-A

The number of sharps or flats increases incrementally as one proceeds clockwise or counterclockwise from C.



From the Circle of Fifths one can derive much useful information:

1. The number of sharps or flats for each key.
2. Determining intervals of a perfect fourth or perfect fifth.
3. The dominant (one step clockwise) and subdominant of a key (one step counterclockwise) for example F-C-G.
4. Other cycles of chords (e.g. iii-vi-ii-V-I; E-A-D-G-C)
5. Closely related keys

1.8-1.9 Exercises

Match the terms and definitions by writing appropriate letters in the blanks provided:

Answer:		
	1. Key	a. tetrachord
	2. Whole step	b. Tonic
	3. Key Signature	c. Solfege for the dominant
	4. Four note group	d. Diatonic scale
	5. The first note in a scale	e. To map a set of intervals onto a new group of pitches
	6. Leads to the mediant	f. Consists of two half steps
	7. sol	g. 4 th scale degree
	8. Transposition	h. Solfege for the leading tone
	9. ti	i. Sharp
	10. an accidental	j. An ordering of sharps or flats that indicates the key of a piece of music

Write the following Major Scales using accidentals for each note as necessary:

G, A, B $\flat$, E, A $\flat$, F, B, E $\flat$, F $\sharp$, D $\flat$

Identify the Scale Degree (number) and Functional Name for each of the notes below given the key:

Key: C

1, Tonic _____

Key D:

4, Subdom. _____

1.8-1.9 Exercises

Key Eb:

Leading Tone _____

Key A:

submediant _____

Identify the key and write the scale degree (number) for each of the notes in the melody:

a.

Key Bb:

b.

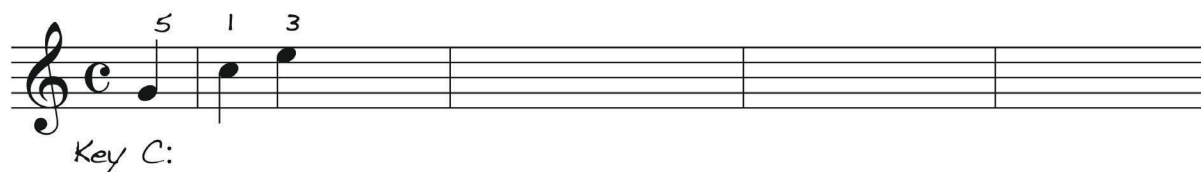
c.

d.

1.8-1.9 Exercises

Transpose the melodies from the previous exercise to the keys shown below. Hint: map the scale degree numbers you indicated above, onto the new Major Scale.

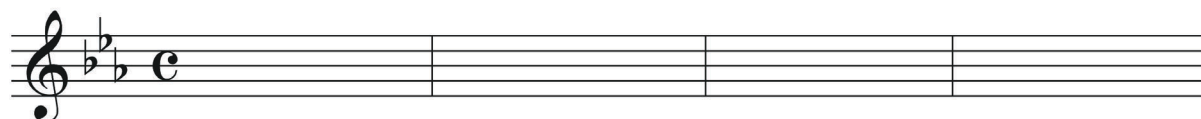
a.



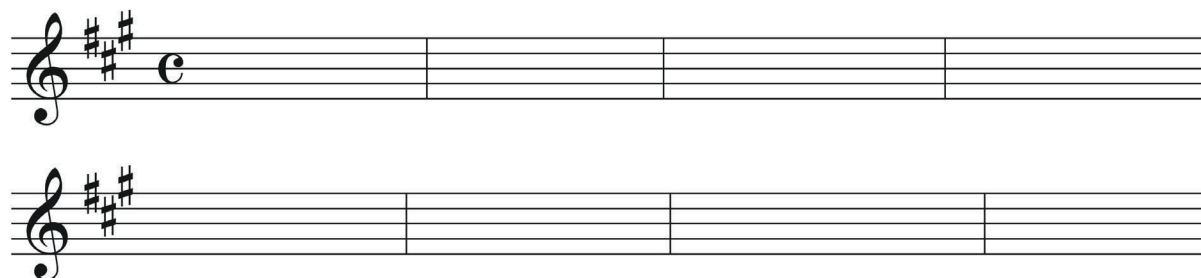
b.



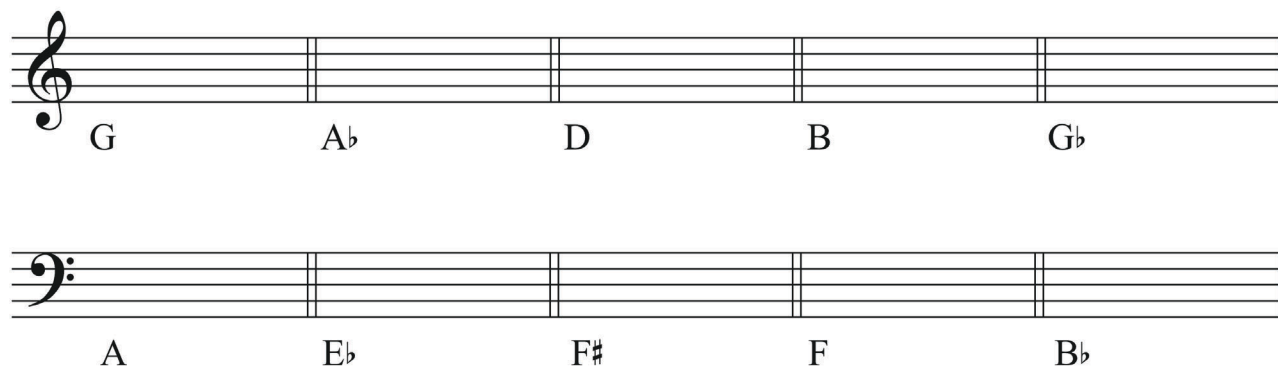
c.



d.



Write the following Key Signatures on the staff provided:



Objective: Students will identify and construct time signatures for the most common compound meters, rhythmic values and groupings (1.11).

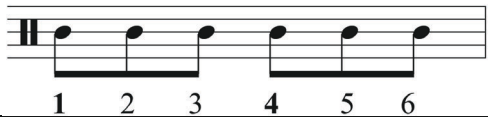
Compound Meter vs. Simple Meter:

In compound meters the beat is divided into three parts, and time signatures represent divisions of the beat rather than rather than note value receiving the beat as in simple meters.

In compound meters the beat is the dotted note value equaling three of the note values represented by the lower number of the time signature. Metric accents are the same as they were for simple meters. The following are the three most common compound meters.

	Compound duple meter, $\frac{6}{8}$. Beat is a dotted quarter and is divided into three eighths. The first beat is accented; count "1-2-3-4-5-6," or "1-la-li, 2-la-li"
	Compound triple meter, $\frac{9}{8}$. Beat is a dotted quarter and is divided into three eighths. The first beat is accented; count "1-2-3-4-5-6-7-8-9," "1-la-li, 2-la-li, 3-la-li"
	Compound quadruple meter, $\frac{12}{8}$. Beat is a dotted quarter and is divided into three eighths. The first beat is accented, and the third beat is relatively accented; count "1-2-3-4-5-6-7-8-9-10-11-12," or "1-la-li, 2-la-li, 3-la-li, 4-la-li"

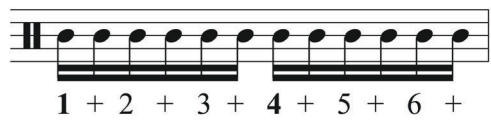
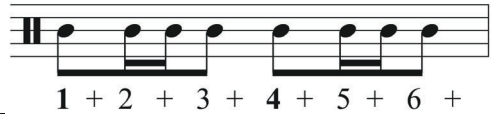
Common Rhythmic Divisions:

	This figure is the beat in a compound duple meter. Counts are listed below each beat.
	Division of the beat.
	This is a common division in compound meter it is well suited to setting poetry that uses the iambic foot.

	This division is a less common division of compound meter.
---	--

Common Rhythmic Subdivisions:

Each of the eighth note divisions of the beat can be further divided or, Subdivided.

	Each eighth note division of the beat is subdivided into sixteenths. Count the subdivisions as "and." "1 and 2 and 3 and etc."
	The second of the eighth note division is subdivided.
	Here the second and third eighth note divisions are subdivided.
	This is a common syncopation in compound meter. Conceptually it is like the third of the divisions shown above. Here the third eighth of the division is preceded by a sixteenth note Anacrusis (an unaccented note preceding a beat or measure).

Compound or Simple Meter?

Identify the meters in the following based on the number of beats in the measure and their division.

Example:	Simple/Compound (How is the beat divided/beamed)?	# of Beats?	Meter?
	<i>compound</i>	4	$\frac{12}{8}$
			
			
			
			

Beaming:

Beam rhythms to the beat of the compound meter; let's work with a duple meter and a beat of a dotted quarter (♩.). Beaming is the same for compound triple or quadruple.



Traditional beaming of eighth notes in compound duple. Groups of divisions add up to one beat.



Same here with subdivisions. Six sixteenth notes are beamed to a dotted quarter note.



With mixed divisions and subdivisions, the beat (dotted quarter) is still clear.



Same is true for this group of mixed divisions and subdivisions using dotted values.



When using rests, the beat grouping is maintained.



Here it is a little less clear because there is no beam. Eighth note rests occupy the 3rd, and 6th divisions.



Beat groups are maintained with subdivisions as well, here and in the next example.

1.11 Exercises

Complete the following table:

Example:	Simple/Compound (How is the beat divided/beamed)?	# of Beats?	Meter?
	<i>compound</i>	3	$\frac{9}{8}$
			
			
			
			
			
			
			
			
			

Write the note value that receives the beat, and its division for each meter given below. The first example is completed for you.



1.11 Exercises

Complete the following table for simple and compound meters:

Time Signature	Meter (duple, triple, quadruple)	# of beats in a measure	Note value that receives a beat.
	Triple		
6 8		2	
2 2		2	
		4	
3 4			
	Quadruple		
2 8		2	
4 16			
C			
	Quadruple		
C			
	Duple		
3 8			
	Duple		
		2	
9 8	Triple		

Beam the notes so they reflect the given meter. Add ties, and add and remove dots so that the beats of the meter are clear.

Solution:



Solution:



Solution:



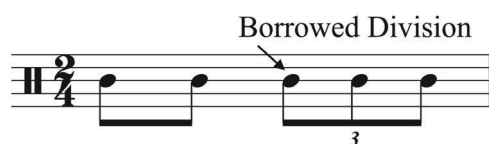
Objective: Students will identify and construct rhythmic figures for simple and compound meters (1.8-9, 1.11-12).

Borrowed Divisions, Triplets and Duplets:

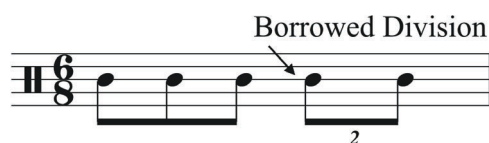
It is possible to borrow/exchange note groupings from compound meters for use in a simple meters and vice versa. Borrowed divisions make possible a triple beat division in simple meters, and a duple division in compound meters.



Simple duple divisions are two per beat, and compound duple divisions are three per beat. These can be borrowed from one meter and placed in the other.



In simple meters, a three-note borrowed division is called a triplet.



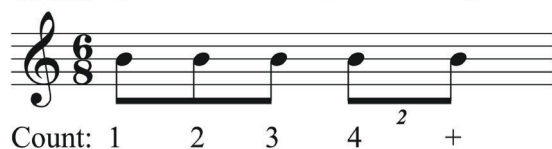
In compound meters a two-note division of the beat is called duplet.

Counting Borrowed Divisions:

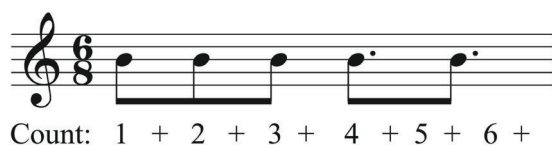
Since borrowed divisions are not divisions of the meter in which they appear, it is necessary to adapt or borrow counting syllables to help keep track of the pulse accurately.



A borrowed division (triplet) in a simple meter can be counted: "1 + a," "1-la-li," "tri-pu-let."



A borrowed division in compound meter can be counted as: "4 +" as shown (borrowing counting syllables from simple meter).



Or it can be subdivided as is shown here.

Tuplets:

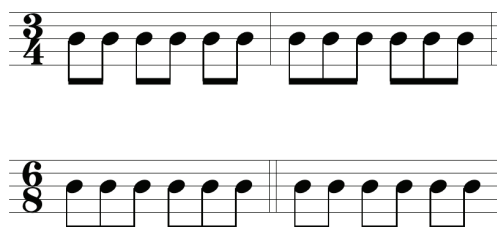
Triplets and duplets are borrowed divisions relating to beats in compound or simple meters. It is possible to divide beats into other groupings such as five or seven. Here are several common types.

Quintuplet: 	Quintuplet: The division of a quarter note into five equal parts. Say “u-ni-ver-si-ty” to feel what the division sounds like.
Sextuplet: 	Sextuplet: The division of a quarter note into six equal parts. This division may be grouped in two's and three's.
Septuplet: 	Septuplet: The division of a quarter note into seven equal parts. Say “Mar-shall U-ni-ver-si-ty” to feel what the division sounds like.

Other Rhythmic Figures:

Hemiola:

The hemiola, a rhythmic figure in which six equal notes may be heard as either two groups of three or three groups of two. This rhythm occurs in simple triple or compound duple meters. The example below shows the two divisions. The hemiola when played against itself, produces a 3:2 polyrhythm.



Anacrusis:

The Anacrusis is a syncopation appearing on the weak beat before the first strong downbeat of a melody, it also called a pick-up. Practice performing the example below to experience how the weak beat anacrusis implies motion to the next downbeat.



1.13

Objective: Students will identify and construct all forms of the minor scale and identify minor key signatures (1.13-6).

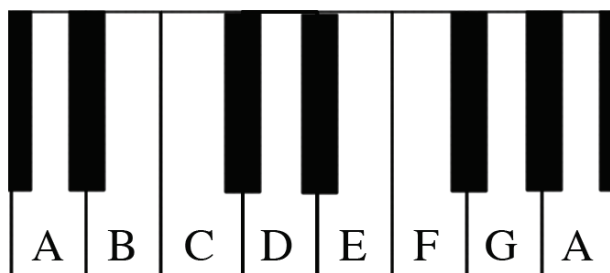
The Minor Scale:

Scales are formed on each pitch in a key generating seven modes. The names for each of these are listed in the central column of the table below, and major and natural minor scales are identified on the right. The natural minor scale begins on the 6th scale degree of the major scale.

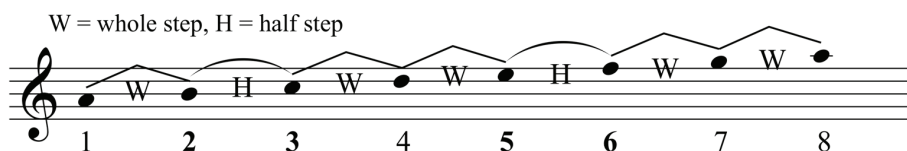
Alphabetic Rotation:	Mode	
C-D-E-F-G-A-B-C	Ionian	Major Scale
D-E-F-G-A-B-C-D	Dorian	
E-F-G-A-B-C-D-E	Phrygian	
F-G-A-B-C-D-E-F	Lydian	
G-A-B- C-D-E-F-G	Mixolydian	
A-B-C-D-E-F-G-A	Aeolian	Natural Minor Scale
B-C-D-E-F-G-A-B	Locrian	

Natural Minor Scale:

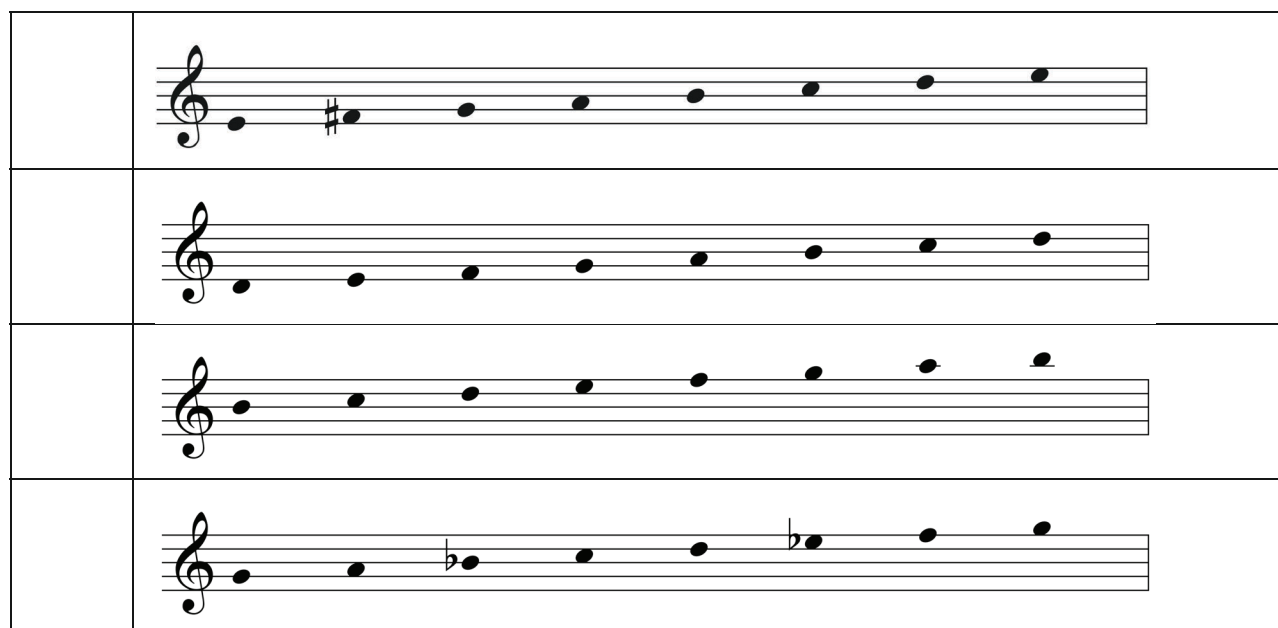
The diagram below shows one octave (eight notes) of the musical alphabet, a-a, the notes for the A natural minor scale.



The natural minor scale contains a half-step between 2-3 creating an interval of 1 ½ steps between the first note of the scale (tonic) and the third note (mediant). This is the interval—a minor third—defines the sound of the minor scale. The second half-step appears between 5-6. All other steps are whole steps.



Based on the sequence of whole and half steps, which of the following are natural minor scales? Locate half steps then whole steps. Place an “x” in the box to the left to identify a natural minor scale.

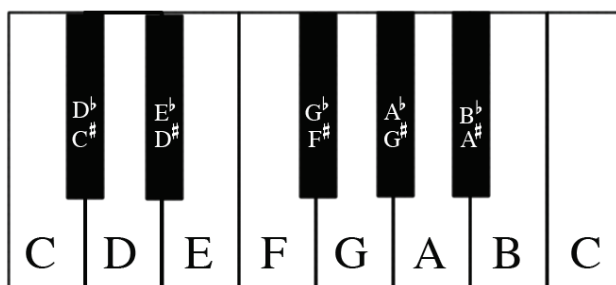


Transposing the Scale:

The minor scale can be transposed to different keys. We can use the same strategy as was used for the major scale.

- A. Write a scale using letters of the musical alphabet in sequential order. Each should be used only once except the first and last pitch which completes the octave.
- B. Add accidentals to create half steps between scale members 2-3, 5-6.
- C. All other scale members should be made whole-steps.

Let's try a few examples. Use the chromatic keyboard as a reference if you need it:

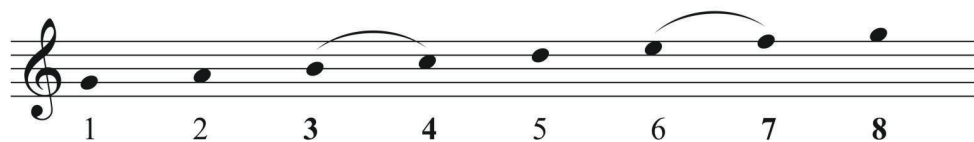


1. G Natural Minor Scale:

- A. Write the sequence of letters beginning and ending with G:

G-A-B-C-D-E-F-G

- B. Naturally occurring half steps: B-C, E-F occur between members 3-4, and 6-7.



C. Add B $\flat$ and E $\flat$ to shift the half steps from members 3-4, 6-7, to members 2-3, 5-6.



D. Check all other members to confirm that they are whole steps.

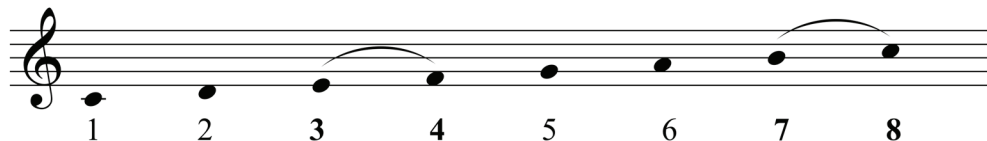
This process generates the G Natural Minor Scale (G-A-B $\flat$ -C-D-E $\flat$ -F-G).

2. C Natural Minor Scale:

A. Write the sequence of letters beginning and ending with C:

C-D-E-F-G-A-B-C

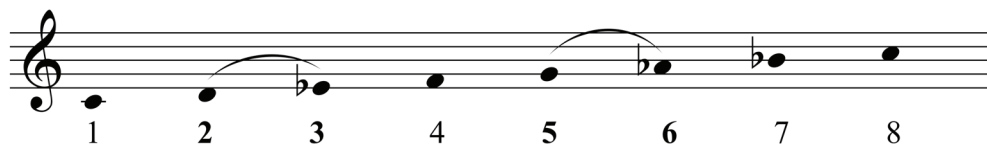
B. Naturally occurring half steps: B-C, E-F occur between members 3-4, and 7-8.



C. Add E $\flat$, A $\flat$ to shift half steps to members 2-3, and 5-6.



D. Check all other members to confirm that they are whole steps. One half step remains between 7-8, add B $\flat$ to make it a whole step.



This process generates the C Natural Minor Scale (C-D-E $\flat$ -F-G-A $\flat$ -B $\flat$ -C).

F Natural Minor Scale:

A. Write the sequence of letters beginning and ending with F:

F-G-A-B-C-D-E-F

B. Naturally occurring half steps: B-C, E-F occur between members 4-5, and 7-8.



C. Add an A $\flat$ and D $\flat$ to create half steps between 2-3, 5-6.



D. Check all other members to confirm that they are whole steps. Add B $\flat$ and E $\flat$ to make the half steps between B-C and E-F into whole steps.



This generates the F Natural Minor Scale (F-G-A $\flat$ -B $\flat$ -C-D $\flat$ -E $\flat$ -F).

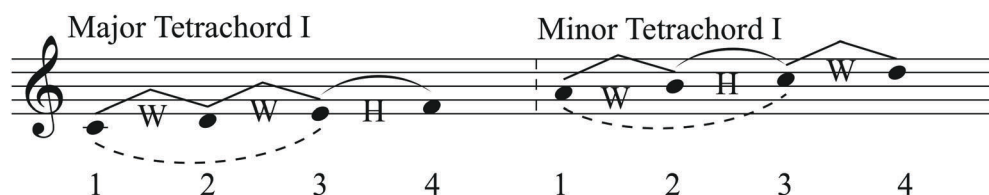
Write Transpositions for the remaining members of the musical alphabet (D, E, and B):

Follow all steps, especially the last to confirm that all members except 2-3, 5-6 are related by a whole step. Use flats for D, and sharps for E and B.

D:	
E:	
B:	

Major and Minor Scale structure:

The whole and half steps between the tonic and mediant (scale degrees 1 and 3) determine whether or not a scale is major or minor. A scale with two whole-steps between the tonic and mediant is major, and one with one whole and one half-step between tonic and mediant is minor. See the example below.



Modes Expressed in Relation to the Major and Minor Scales:

Diatonic modes can be defined in relation to the major and minor scales. Modal scales imply the underlying harmony of their tonic scale degree in the same fashion as the major and minor scale.

Major Modes	
Major Scale: (Ionian)	
Lydian: Major with #4	(tetrachord II same as major)
Mixolydian: Major with b7	(tetrachord I same as major)
Minor Modes	
Minor Scale: (Aeolian)	
Dorian: Minor scale with #6	(tetrachord I same as minor)
Phrygian: Minor Scale with b2	(tetrachord II same as minor)

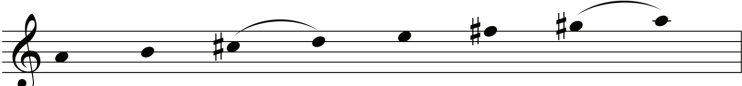
Objective: Students will identify and construct the three forms of the minor scale and learn functional names for each member of the scale (1.14).

Harmonic Minor Scale:

Raising the seventh pitch of the natural minor scale by a half step forms the harmonic minor scale. The raised seventh functions as a leading tone and is used only when necessary. The key signature is unaltered.

The new leading tone also produces a major chord on the dominant (V), and a diminished chord on the leading tone (vii°).

Play the scale and listen to the tendency of the raised 7th.

	Natural Minor: half steps between 2-3, 5-6.
	Harmonic Minor: half steps between 2-3, 5-6, and 7-8. G # creates a Leading Tone→Tonic. 6 th scale degree to 7 th is an augmented second (3 half-steps).
	Major: half steps between 3-4, 7-8.

The Melodic Minor Scale:

In the harmonic minor scale, the interval between the 6-7 scale degrees is an augmented second (A2). To maintain a pattern of M2's and m2's in the scale, the 6th scale degree of the harmonic minor scale is raised giving 5- #6- #7-8. This scale is called the melodic, or the ascending melodic minor scale. Chromatic alterations that create the ascending melodic minor scale are used when necessary and do not alter the key signature.

	Ascending Melodic Minor: 6 th and 7 th are raised.
	Descending Melodic Minor: 6 th and 7 th are lowered—same as Natural Minor Scale
	Major: Notice scale degrees 5-6-7-8 are identical between Major and Melodic Minor Ascending form. In fact, the only pitch that differs is the mediant of the Major scale C #.

Scale Degree Names for the Forms of the Minor Scale:

Names associated with scale degrees in major are the same for minor. The table below shows scale degree and the functional name associated with each.

SCALE DEGREE	FUNCTIONAL NAME
1	TONIC
2	SUPERTONIC
3	MEDIANT
4	SUBDOMINANT
5	DOMINANT
6	SUBMEDIANT
#6	SUBMEDIANT (only Melodic Minor)
7	SUBTONIC (only Natural Minor)
#7	LEADING TONE (only in Harmonic and Melodic)
8	TONIC

Fill in the blanks with appropriate answers for the minor scale:

STEP/DEGREE	FUNCTIONAL NAME	SOLFEGE SYLLABLE (do minor)	SOLFEGE SYLLABLE (la minor)
1			
	MEDIANT		
		re	ti
		ti	si
	SUBDOMINANT		
6			
		fa	re
5			
	SUBMEDIANT		
		sol	mi
	LEADING TONE (#)		
2			
	TONIC		

Objective: Students will define relative and parallel scale relationships and be able to construct these scales (1.15).

Relative Major and Relative Minor:

When a major and minor scale share the same key signature, they are called relative.

A minor, is the relative minor of the C major and C major is the relative major of A minor. For every major key, the relative minor scale will be spelled from the sixth note (submediant). For every minor scale, the relative major will be spelled from the third note (mediant) of the scale.

Major and Minor Scales that are Relative use the same Key Signature

Relative Minor:
Begins on the submediant of Major

Relative Major:
Begins on the mediant of Minor

Write the name of each relative key in the boxes below, use accidentals when necessary.

Major Key	Relative Minor (submediant)	Minor	Relative Major (mediant)
A		b ♭ minor	
D		c # minor	
F		a minor	
E ♭		e minor	
B ♭		f minor	

Parallel Minor:

Parallel keys share the same tonic, but switch mode. For example, the parallel minor of G major is g minor. Relative and parallel relationships are used often in music.

Parallel Keys share the same Tonic:



C Major: parallel major to C Minor



C Minor:
Parallel minor to C Major

Objective: Students will be able to identify and construct minor key signatures (1.16).

Minor Key Signatures:

Minor keys use the same key signatures as their relative major.

The following shows key signatures for all sharp and flat keys. Relative minors are shown beneath the key signature next to their relative major:

Sharp Keys (The order of Sharps is: F, C, G, D, A, E, B):

For treble and bass clefs the location of sharps is adjusted for the clef.

- **Major Keys:** one scale step above the sharp of the key signature gives the tonic of the major key.
- **Minor Keys:** one scale step below the last sharp of the keys signature gives the tonic of the minor key.

C/a G/e D/b A/f# E/c# B/g# F#/d# C#/a#

C/a G/e D/b A/f# E/c# B/g# F#/d# C#/a#

Key: C/a G/e D/b A/f# E/c# B/g# F#/d# C#/a#

Key: C/a G/e D/b A/f# E/c# B/g# F#/d# C#/a#

Flat Keys (The order of Flats is: B, E, A, D, G, C, F):

For treble and bass clefs the location of Flats is adjusted for the clef.

- **Major Keys:** four scale steps above the last flat gives the key, or the second to last flat gives the tonic for key.
- **Minor Keys:** Two scale steps above the last flat gives the tonic for the minor key.

C/a F/d Bb/g Eb/c Ab/f Db/bb Gb/eb Cb/ab



C/a F/d Bb/g Eb/c Ab/f Db/bb Gb/eb Cb/ab

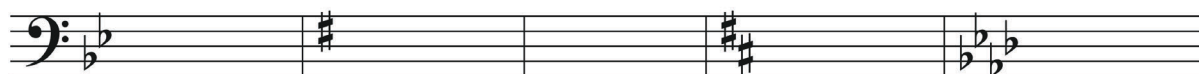


Key C/a F/d Bb/g Eb/c Ab/f Db/bb Gb/eb Cb/ab



Key: C/a F/d Bb/g Eb/c Ab/f Db/bb Gb/eb Cb/ab

Complete the following by writing the name of the minor key on the blanks provided:



g _____

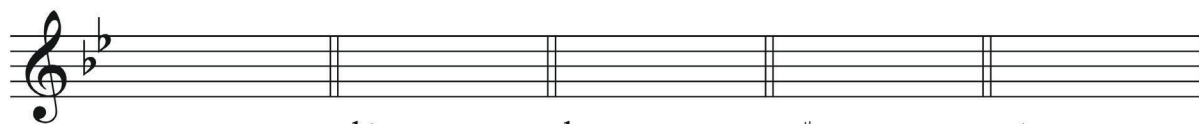




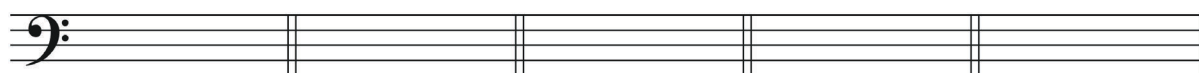
b _____



Write the key signature for each minor key on the staff below:



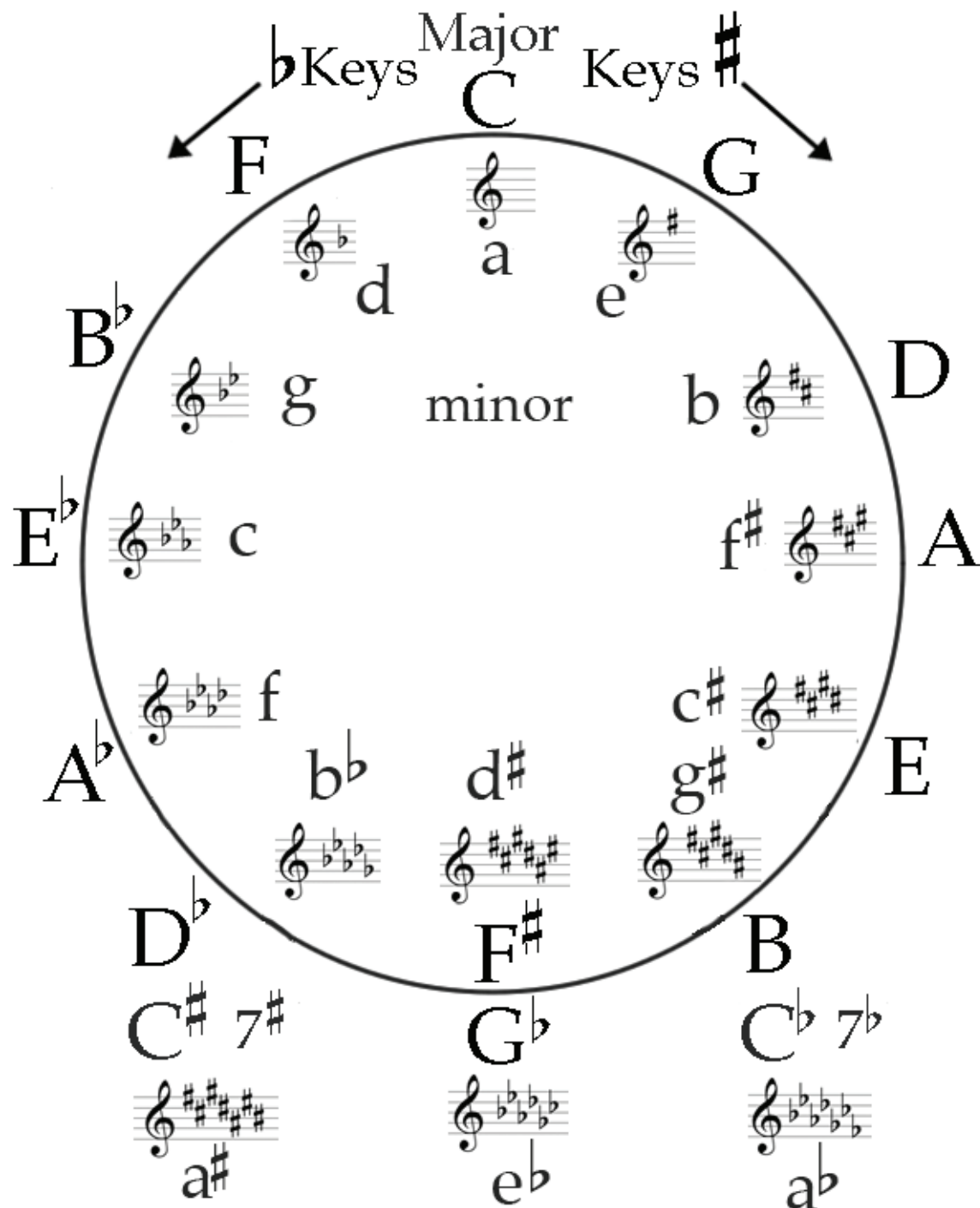
g b b g# eb



a c f# f d

The Circle of Fifths:

Use the circle of fifths as a memorization aid for major and relative minor keys, and their key signatures. This version shows them all including the number accidentals and their key signatures. Each relative minor key (lower case, inner circle) is the sixth scale degree of the major scale.

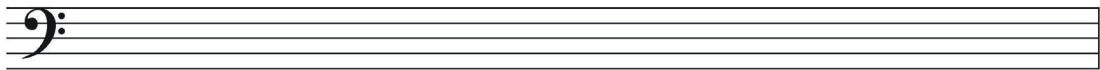
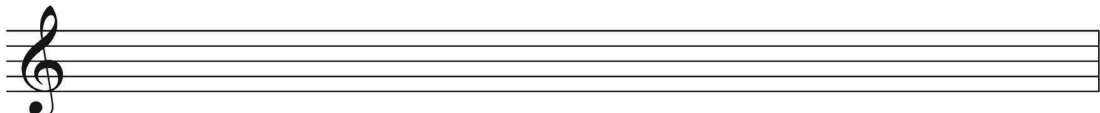
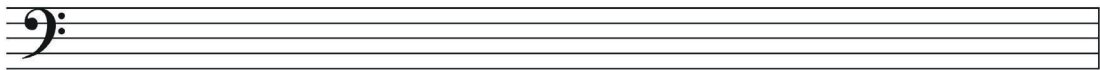
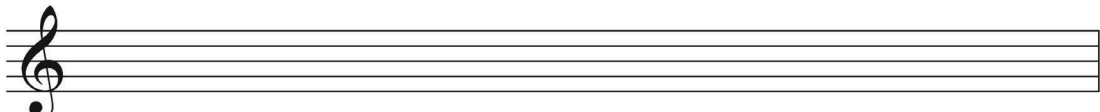
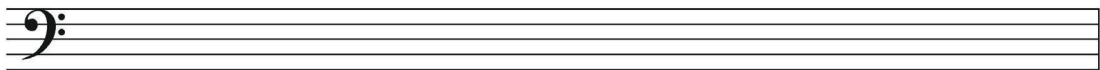


1.13-1.16 Exercises

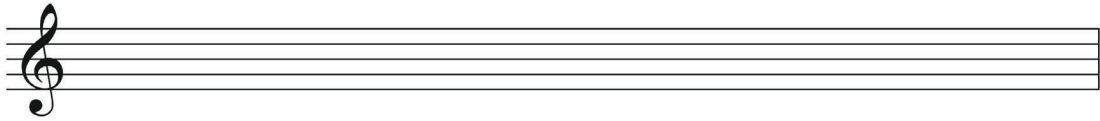
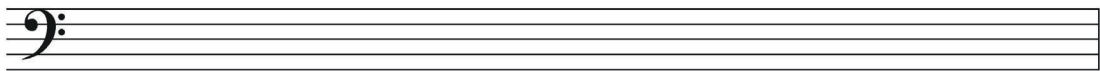
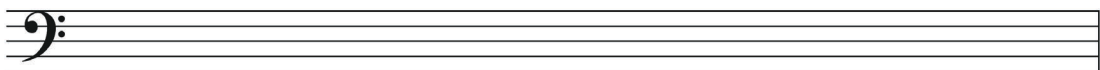
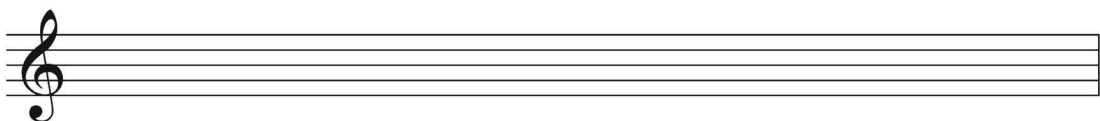
Match the terms and definitions by writing appropriate letters in the blanks provided:

Answer:		
	1. Relative	a. D Minor/D Major
	2. W-W-H	b. Minor Tetrachord I
	3. B $\flat$ minor	c. Solfege for the dominant
	4. Parallel	d. A Major/F $\sharp$ Minor
	5. W-H-W	e. To map a set of intervals onto a new group of pitches
	6. Leads to the tonic	f. Major Tetrachord
	7. sol	g. 5 flats
	8. Transposition	h. leading tone
	9. B Minor	i. 4 sharps
	10. C $\sharp$ Minor	j. 2 sharps

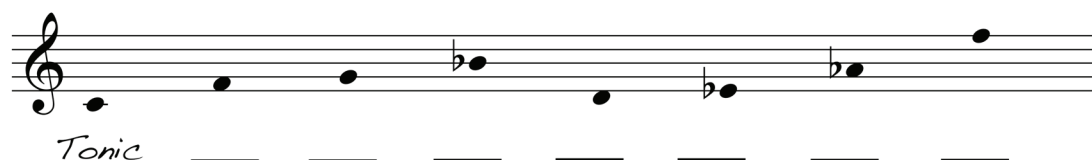
2. Write the following Minor Scales using accidentals as necessary. They are all natural minor unless otherwise indicated:

g	
a	
b $\flat$	
e harmonic	
g $\sharp$	

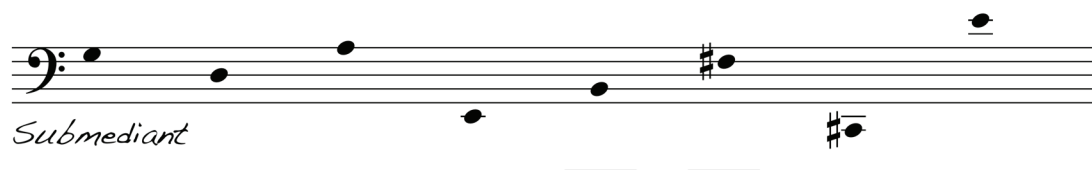
1.13-1.16 Exercises

f melodic	
b	
e ♭	
c # harmonic	
f #	

Identify the Functional Name for each of the notes below determine the minor key signature and write it on the staff (do not include altered notes of Harmonic or Melodic minor in the key signature):



Tonic _____

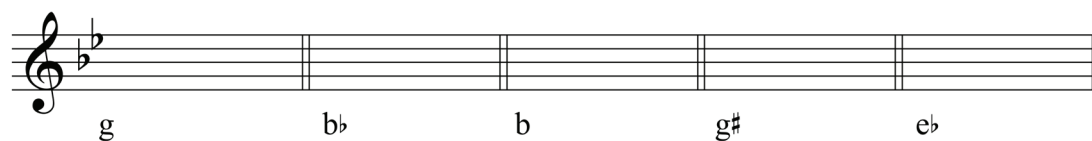


Submediant _____



Tonic _____

Write Minor Key Signatures on the staff provided:



g b♭ b g# e♭

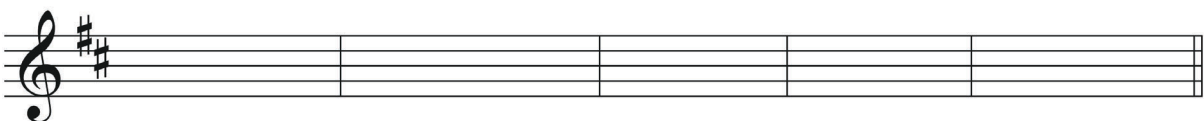
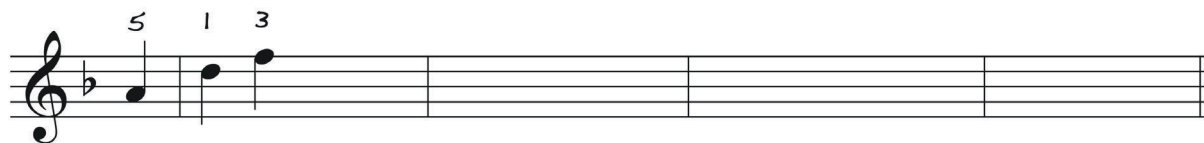
1.13-1.16 Exercises



Identify the minor key and write the scale degree (number) for each of the notes in the melody.



Transpose the first two melodies from the last exercise to the minor key indicated by the key signature on the staves below. Map the scale degree numbers you indicated above, onto the new Minor Scales.



1.17

Objective: Students will identify and construct simple intervals (melodic and harmonic forms) on treble, bass, and grand staff (1.17).

Interval:

An interval is the distance between two pitches on the staff. Intervals are expressed as type, using a number between 1-8, and quality, using a letter indicating: major (M), minor (m), perfect (P), augmented (A), or diminished (d).

Interval Type:

The interval type is determined by the distance between two pitches expressed as a number between one (1) and eight (8). To determine the interval type, count the number of scale steps between the letters starting with the first pitch. Intervals formed between members of the scale and are called diatonic.

Diatonic intervals from C:

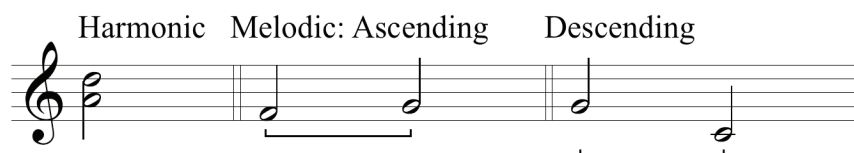
INTERVALS	NOTATED	SCALE STEPS	INTERVAL
C ⁴ -C ⁴		C-C	Unison (1)
C-D		C-D	2 nd
C-E		C-D-E	3 rd
C-F		C-D-E-F	4 th
C-G		C-D-E-F-G	5 th
C-A		C-D-E-F-G-A	6 th
C-B		C-D-E-F-G-A-B	7 th
C ⁴ -C ⁵		C-D-E-F-G-A-B-C	Octave (8)

Identify the following interval types using keyboard for reference if needed.



Pitches:	D	E										
Interval type:	2 nd											

Intervals can be sounded simultaneously (harmonic), or appear in sequence (melodic) as ascending or descending. The type and quality of an interval will be the same regardless of how it is sounded.



Simple Intervals:

Intervals that are an octave or less are called simple intervals. In our analysis / discussion of music, we will use simple intervals.

Interval Quality:

The eight interval types are paired with interval quality to generate intervals from 0-12 semitones in size. Interval quality expressed as: perfect, major, minor, diminished, and augmented, and is determined by counting the number of semitones, or whole+half-steps.

Perfect Intervals:

The perfect intervals are the: unison, octave, fourth, and fifth.

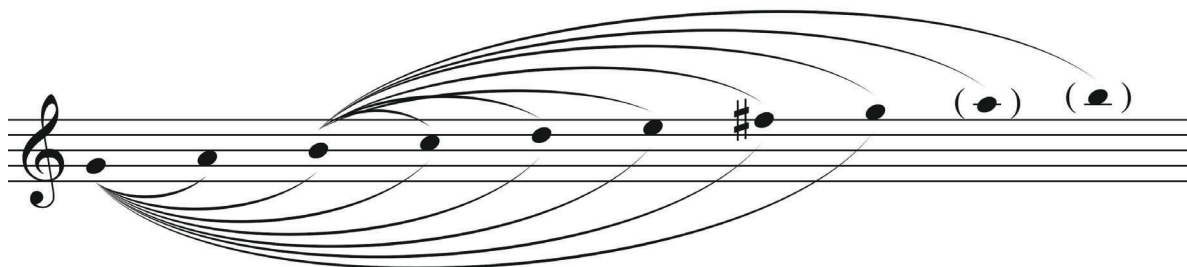
INTERVAL TYPE		# of semitones	# of scale steps*	QUALITY	INTERVAL
Unison	1	0	0	Perfect	P1
Fourth	4 th	5	2W 1H	Perfect	P4
Fifth	5 th	7	3W 1H	Perfect	P5
Octave	8 th	12	5W 2H	Perfect	P8

W = Whole step, H = Half step.

These are major or minor:

INTERVAL TYPE		# of semitones	# of scale steps	QUALITY	INTERVAL
Second	2 nd	1 or 2	1H, or 1W	Minor, Major	m2, M2
Third	3 rd	3 or 4	1H+1W or 2W	Minor, Major	m3, M3
Sixth	6 th	8 or 9	4W, or 4W+1H	Minor, Major	m6, M6
Seventh	7 th	10 or 11	5W, or 5W+1H	Minor, Major	m7, M7

Intervals found in the G Major Scale from two different pitches G (tonic) and B (mediant):



First determine the interval's type, then count the number of half-steps to determine the quality.

Intervals from G:

Pitches	Type	# of semitones	# of scale steps	Quality	Interval
G-A	2 nd	2	1W	Major	M2
G-B	3 rd	4	2W	Major	M3
G-C	4 th	5	2W+1H	Perfect	P4
G-D	5 th	7	3W+1H	Perfect	P5
G-E	6 th	9	4W+1H	Major	M6
G-F#	7 th	11	5W+1H	Major	M7
G-G	8 th	12	6W	Perfect	P8

Intervals from B:

Pitches	Type	# of semitones	# of scale steps	Quality	Interval
B-C	2 nd	1	1H	Minor	m2
B-D	3 rd	3	1W+1H	Minor	m3
B-E	4 th	5	2W+1H	Perfect	P4
B-F#	5 th	7	3W+1H	Perfect	P5
B-G	6 th	8	4W	Minor	m6
B-A	7 th	10	5W	Minor	m7
B-B	8 th	12	6W	Perfect	P8

Why Are Some Intervals Perfect?

Originally the notion of Perfect Intervals came from the Greeks, and notably Pythagoras who taught philosophy and mathematics around 500 B.C.E.

Ratios for perfect intervals were derived from fractional division of a vibrating string (monochord) and the intervals of the octave (2:1), fifth (3:2), and fourth (4:3) were considered the most harmonious and were thus termed perfect.

The term is still employed today where the notion of harmonic “perfection” or the “purity” of perfect intervals is acknowledged as an aspect of interval quality; and though the most common tuning system—equal temperament—uses only the pure octave, musicians will often play perfect intervals tuned closer to those produced by simple ratios obtained from the Harmonic Series.

Consonance:

Consonant intervals are perfect intervals, thirds, and sixths. The term implies that these intervals are “in agreement” or have a pleasing sound. Perfect intervals are called perfect consonances. Thirds and sixths are called imperfect consonances.

Dissonance:

Seconds, sevenths, augmented fourths, or diminished fifths are called dissonant intervals. The term means discordant, jarring, or harsh.

Recognizing Interval types on the staff:

1. Odd interval types, 3rd 5th 7th both pitches occur on either lines, or spaces.



2. Even interval types, 2nd 4th 6th when one pitch occurs on a line, the other will be on a space.



3. Intervals where both members are transposed by the same amount maintain the same type and quality. In the following, a semitone has been added or subtracted from each interval member maintaining the same interval.



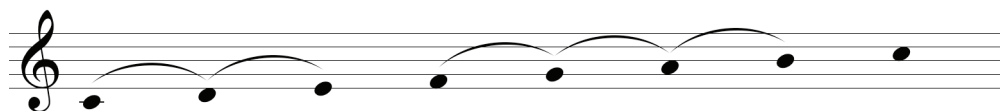
Intervals in The Major Scale:

The most frequently used intervals are those found in scales. Let's examine intervals found in the major scale:

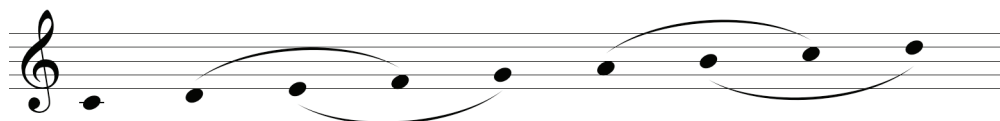
Two minor seconds, m2 between scale degrees 3-4 and 7-8.



Five major seconds, M2 between scale degrees 1-2, 2-3, 4-5, 5-6, 6-7



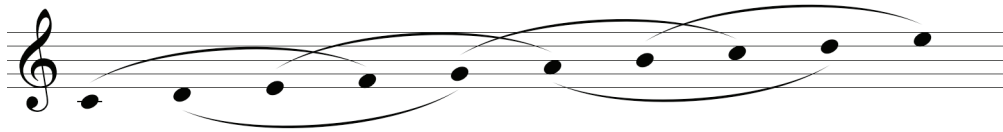
Four minor thirds, m3 between scale degrees 2-4, 3-5, 6-1, 7-2



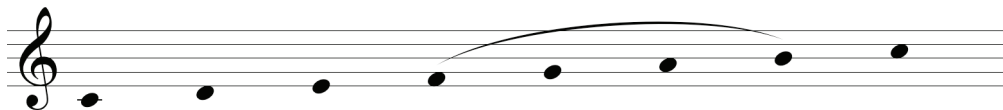
Three major thirds, M3 between scale degrees 1-3, 4-6, 5-7



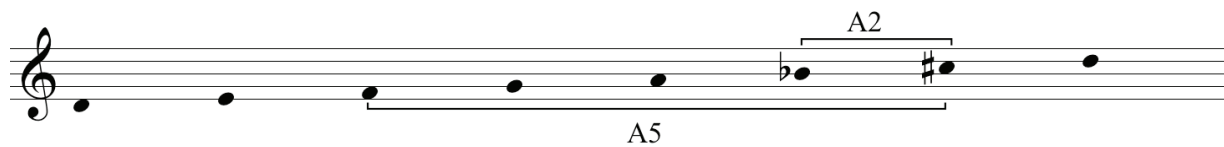
Six perfect fourths, P4 between scale degrees 1-4, 2-6, 3-7, 5-1, 6-2, 7-3



One augmented fourth, A4 between scale degrees 4-7



The harmonic minor scale introduces several other commonly used intervals. The augmented second, A2 (Bb-C#). The augmented fifth, A5 is formed between the 3rd and #7th scale degrees of the harmonic minor scale. 1.18 deals specifically with augmented and diminished intervals.



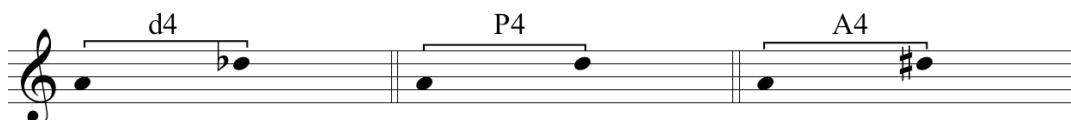
Augmented and Diminished Intervals:

Intervals that are not major, minor, or perfect are either augmented—expanded by 1 semitone—or diminished—compressed by 1 semitone.

For example, C-F#, is a fourth that is 6 semitones; 1 semitone greater than the perfect fourth and is thus an augmented fourth (A4). B-F is a fifth, six semitones; 1 semitone smaller than a P5 B-F# and is a diminished fifth (d5).

Pitches	Type	# semitones	# scale steps	Quality	Interval
C-F#	4 th	6	3W	Augmented	A4
B-F	5 th	6	3W	Diminished	d5

Perfect intervals can only be Perfect, Augmented, or Diminished

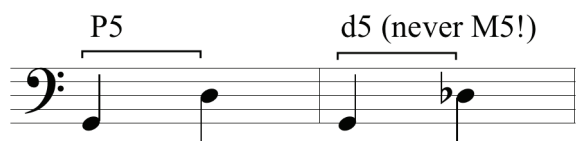


Intervals that are either major or minor can also be augmented or diminished:

- A minor interval is made diminished by subtracting semitone.
- A major interval is made augmented by adding one semitone.
- A minor interval to which a semitone is added becomes major, and conversely a major interval become minor if a semitone is subtracted.



Avoid these pitfalls!



Perfect intervals can be either Augmented, or diminished, but never Major, or Minor.



The Unison (P1) may be augmented, but never diminished. Intervals must contain 0 or greater semitones.

Doubly Augmented, Doubly Diminished:

It is possible to continue increasing and decreasing the size of an interval. Intervals of this type would be doubly augmented, or doubly diminished. In practice intervals of this type rare.

Objective: Students will learn how to invert simple intervals (1.19).

Interval Inversion

Intervals are inverted when the lowest member of the interval is raised by an octave. In the example below the M3 from C-E is paired with its inversion the m6 from E-C. An interval and its inversion can be paired to complete an octave. This property holds for any interval and is an excellent strategy for identifying larger intervals.



Inverted intervals: Perfect intervals stay perfect, major and minor intervals exchange quality, as do augmented and diminished intervals.

INTERVAL	# of semitones		INVERSION
Unison, P1	0	12	Octave, P8
minor second, m2	1	11	Major Seventh, M7
Major second, M2	2	10	minor Seventh, m7
minor Third, m3	3	9	Major Sixth, M6
Major Third, M3	4	8	minor Sixth, m6
Perfect Fourth, P4	5	7	Perfect Fifth, P5
Augmented Fourth, A4	6	6	diminished Fifth, d5
minor Sixth, m6	8	4	Major Third, M3
Major Sixth, M6	9	3	minor Third, m3
minor Seventh, m7	10	2	Major Second, M2
Major Seventh, M7	11	1	minor Second, m2
Octave, P8	12	0	Unison, P1

The sum of interval types for inversive pairs adds to nine (e.g. 3rd and 6th).

The number of semitones in each inversive pair sums to twelve.

Strategy:

When confronted with the task of identifying an interval larger than an A4, invert the interval to find its pair. Identify the following intervals using their inversion. In the first example below:

1. Interval: A-G
2. Inverting the interval G-A gives a M2 (2 semitones)
3. A-G then has 10 semitones ($2+10 = 12$)
4. A-G is a minor seventh

(inversion)

Inversion	M2								
Interval	m7								

Inverted intervals in the Major Scale:

The Major scale has two minor seconds inverted these become Major sevenths:

It also contains five Major seconds inverted these become minor sevenths:

Four minor thirds become Major sixths:

Three Major thirds become minor sixths:

Six Perfect fourths become Perfect fifths:

The augmented fourth becomes a diminished fifth:

Objective: Students will identify and construct compound intervals (1.20).

Compound Intervals:

Simple intervals are an octave or less in size; those larger than an octave, are called compound. This simply means that an octave has been added to a simple interval. The chart below shows simple intervals and their compound interval equivalents.

Simple interval names are used most frequently, but one examines pitches in various registers, voice-leading, and harmonic extensions beyond the 7th, compound interval names are used.

PITCHES	NOTATED	COMPOUND INTERVAL	SIMPLE INTERVAL + P8
C4-Db5		m9	m2
C4-D5		M9	M2
C4-Eb5		m10	m3
C4-E5		M10	M3
C4-F5		P11	P4
C4-F#5		A11	A4
C4-G5		P12	P5
C4-Ab5		m13	m6
C4-A5		M13	M6

1.17-1.20 Exercises

Identify the following intervals.

Exercise 1.17: *m2*

Exercise 1.17 consists of two staves. The treble staff contains five intervals: G4 to A4 (labeled *m2*), A4 to Bb4, B4 to C5, C5 to Bb4, and B4 to A4. The bass staff contains five intervals: G3 to F3, F3 to Eb3, Eb3 to D3, D3 to C3, and C3 to B2.

Exercise 1.18: *M2*

Exercise 1.18 consists of two staves. The treble staff contains five intervals: G4 to A4 (labeled *M2*), A4 to B4, B4 to C#4, C#4 to B4, and B4 to A4. The bass staff contains five intervals: G3 to A3, A3 to Bb3, Bb3 to C4, C4 to Bb3, and Bb3 to A3.

Exercise 1.19: *m3*

Exercise 1.19 consists of two staves. The treble staff contains five intervals: G4 to Bb4 (labeled *m3*), Bb4 to C5, C5 to D5, D5 to Bb4, and Bb4 to G4. The bass staff contains five intervals: G3 to Bb3, Bb3 to C4, C4 to D4, D4 to Bb3, and Bb3 to G3.

Exercise 1.20: *M3*

Exercise 1.20 consists of two staves. The treble staff contains five intervals: G4 to B4 (labeled *M3*), B4 to C#4, C#4 to D5, D5 to B4, and B4 to G4. The bass staff contains five intervals: G3 to Bb3, Bb3 to C4, C4 to D4, D4 to Bb3, and Bb3 to G3.

Exercise 1.21: *P4*

Exercise 1.21 consists of two staves. The treble staff contains five intervals: G4 to C5 (labeled *P4*), C5 to Bb4, Bb4 to Ab4, Ab4 to G4, and G4 to F4. The bass staff contains five intervals: G3 to C4, C4 to Bb3, Bb3 to Ab3, Ab3 to G3, and G3 to F3.

1.17-1.20 Exercises

The image displays six systems of musical exercises for guitar, each consisting of a treble and bass staff. The exercises are labeled with guitar-specific markings: *p4*, *d5*, *p5*, *m6*, and *M6*. Each system contains five measures of music, with notes and accidentals (sharps, flats, and naturals) indicating specific pitches. Some notes are marked with an 'x', likely indicating a natural harmonium or a specific playing technique. The exercises are arranged in a vertical sequence, with each system occupying two staves.

System 1: Treble staff starts with a G4 note, followed by A4, B4, C5, and D5. Bass staff starts with a G2 note, followed by F2, E2, D2, and C2. Marking: *p4*.

System 2: Treble staff starts with a Bb4 note, followed by A4, G4, F4, and E4. Bass staff starts with a Bb2 note, followed by A2, G2, F2, and E2. Marking: *d5*.

System 3: Treble staff starts with a G4 note, followed by A4, B4, C5, and D5. Bass staff starts with a G2 note, followed by F2, E2, D2, and C2. Marking: *p5*.

System 4: Treble staff starts with a Bb4 note, followed by A4, G4, F4, and E4. Bass staff starts with a Bb2 note, followed by A2, G2, F2, and E2. Marking: *m6*.

System 5: Treble staff starts with a G4 note, followed by A4, B4, C5, and D5. Bass staff starts with a G2 note, followed by F2, E2, D2, and C2. Marking: *M6*.

1.17-1.20 Exercises

The first exercise is labeled 'm7' and the second is labeled 'M7'. Each exercise consists of a treble and bass staff with five measures of music. The notes are as follows:

Exercise	Staff	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
m7	Treble	C4	Bb3	A3	G3	F3
	Bass	F#2	E2	D2	C2	B1
M7	Treble	C4	Bb3	A3	G3	F#3
	Bass	Bb2	A2	G#2	F2	E2

Write the interval type indicated on the staff. Write the interval and quality in the blank provided.

The exercises are labeled 'm2', 'Second Below:', 'd3', and 'Third Below:'. Each exercise consists of a treble and bass staff with five measures of music. The notes are as follows:

Exercise	Staff	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
m2	Treble	C#4	Bb4	A4	G4	F4
	Bass	C2	Bb1	A1	G1	F1
Second Below:	Treble	C#4	Bb4	A4	G4	F4
	Bass	C2	Bb1	A1	G1	F1
d3	Treble	C#4	Bb4	A4	G4	F4
	Bass	C2	Bb1	A1	G1	F1
Third Below:	Treble	C#4	Bb4	A4	G4	F4
	Bass	C2	Bb1	A1	G1	F1

1.17-1.20 Exercises

Fourth Above:

Fourth Below:

Fifth above:

Fifth below:

Sixth Above:

Sixth Below:

Seventh Above:

Seventh Below:

Write the Pitches, the Interval and its Quality for each example below.

Tonic of Ab Major and its Subdominant *p4*

Leading tone of G Major and its Dominant

1.17-1.20 Exercises

Supertonic of d minor and its Mediant _____

Submediant of Bb Major and its Tonic _____

Subdominant of a minor and its Supertonic _____

Mediant of e minor and its Leading tone _____

Dominant of Eb Major and Supertonic _____

Tonic of f minor and its Submediant _____

Leading tone of c minor and its Submediant _____

Supertonic of E major and its Mediant _____



Construct the following intervals as indicated:

Above:

M7	A5	m3	M2	P4

M6	P5	m7	M3	d5

Below:

m3	P4	m2	M3	d5

M2	M3	m6	P1	M6

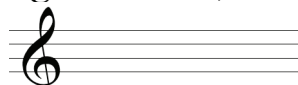
1.17-1.20 Exercises

Write the Key Signature, Pitches, the Interval, and its Quality for each example below.

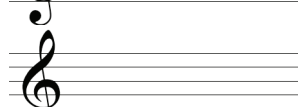
4th and 6th scale degree of D Major M₃



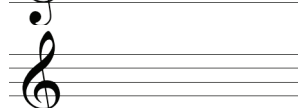
5th and 6th scale degree of C Minor _____



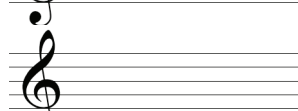
2nd and 7th scale degree of E Major _____



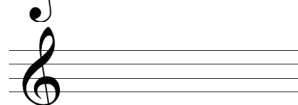
4th and 6th scale degree of G Minor _____



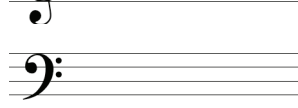
5th and 4th scale degree of Bb Major _____



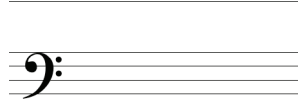
1st and 5th scale degree of A Minor _____



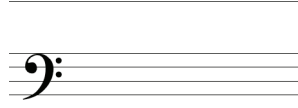
6th and 3rd scale degree of Eb Major _____



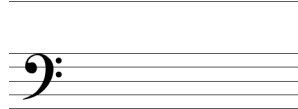
2nd and raised 7th scale degree of D Minor _____



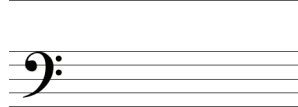
1st and 6th scale degree of Ab Major _____



3rd and 2nd scale degree of A Major _____

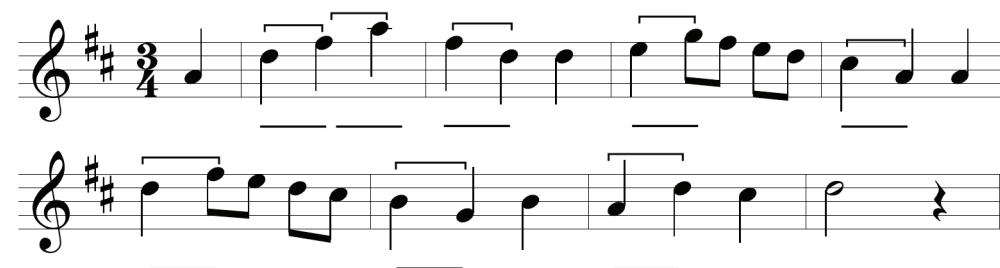


3rd and 1st scale degree of F Minor _____



Identify the intervals bracketed in each of the melodies below:

a. *Ash Grove*



1.17-1.20 Exercises

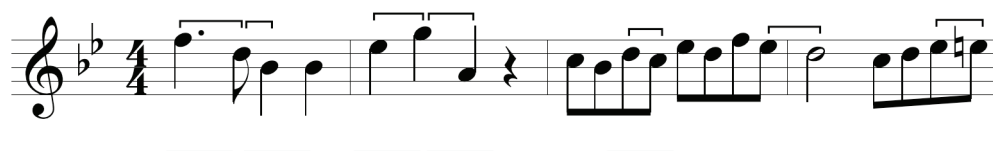
b. *Oh Tannenbaum*



c. *Nobody Knows the Trouble I've Seen*



d. Mozart *Piano Sonata, K. 333, movt. I*



Invert the following intervals and write the quality for both the given interval and its inversion.

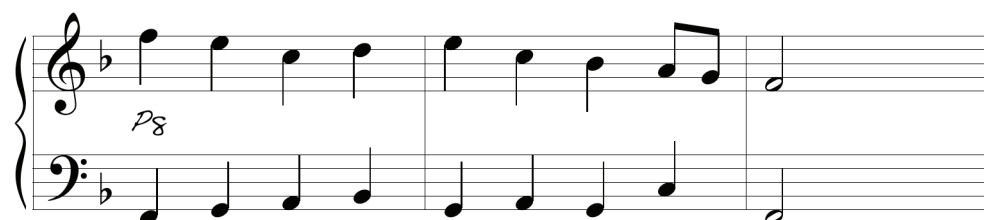
Identify the following Compound Intervals.

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1.17-1.20 Exercises



Label intervals occurring between pitches on the two staves below. Reduce compound intervals to simple (an octave or less).



Written Assignment 1 (1.1-1.6):

Write the letter name for each pitch on the space provided.

The first system is a treble clef staff with notes: C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6. Below the staff is a dashed line for labeling.

The second system is a bass clef staff with notes: C3, D3, E3, F#3, G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4, C5. Below the staff is a dashed line for labeling.

The third system is a bass clef staff with notes: C3, D3, E3, F#3, G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4, C5. Below the staff is a dashed line for labeling.

The fourth system is a bass clef staff with notes: C3, D3, E3, F#3, G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4, C5. Below the staff is a dashed line for labeling.

The fifth system is a grand staff (treble and bass clefs) with notes: C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6. Below the staff is a dashed line for labeling.

Identify pitches in the following excerpt using ASA (middle C = C4):

Chopin Mazurka Op. 7, no. 2

The excerpt is in 3/4 time. The first system shows a treble clef staff with a melody and a bass clef staff with chords. The second system shows a treble clef staff with a melody and a bass clef staff with chords. The third system shows a treble clef staff with a melody and a bass clef staff with chords. The fourth system shows a treble clef staff with a melody and a bass clef staff with chords. The fifth system shows a treble clef staff with a melody and a bass clef staff with chords.

Write pitches one half step above those given on the staff below. Use accidentals as necessary.



Write pitches one half step below those given on the staff below. Use accidentals as necessary.



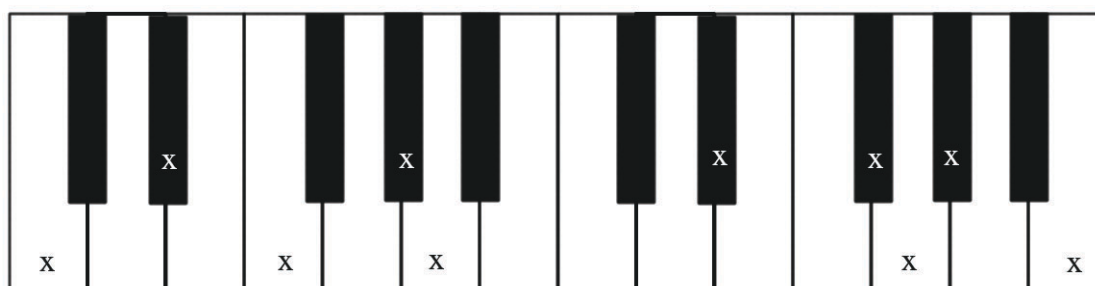
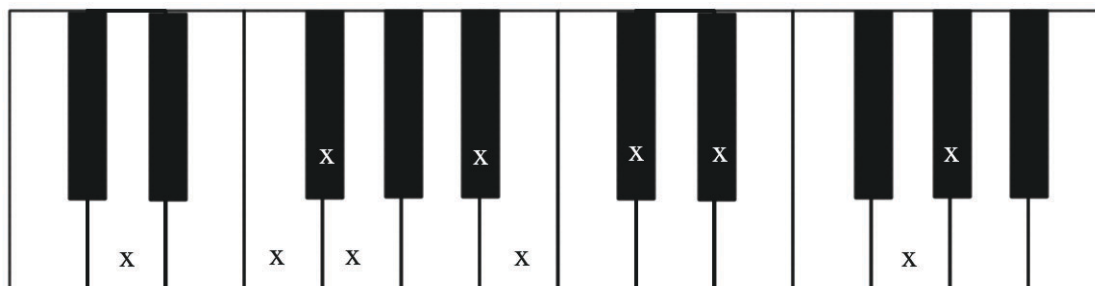
Write pitches one whole step above those given on the staff below. Use accidentals as necessary.



Write pitches one whole step below those given on the staff below. Use accidentals as necessary.



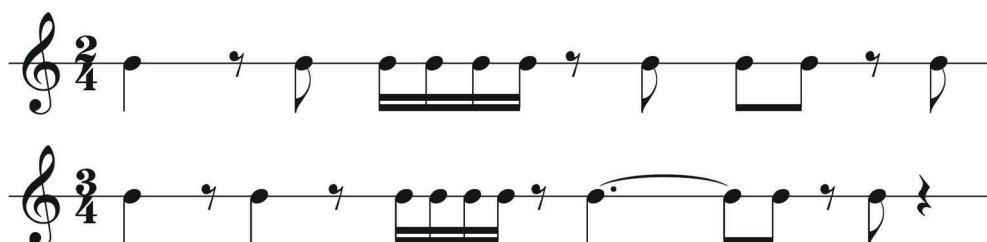
Draw a line between notes on the keyboard and the staff below.

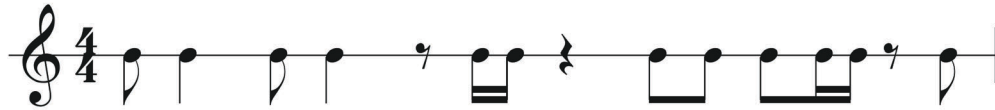


Given the first pitch, write enharmonic equivalents, including double flats, and double sharps when possible. There will be 1-2 solutions for each.

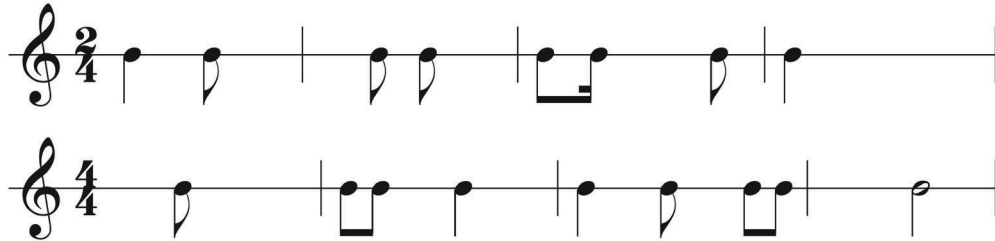


Place barlines in the following examples so to reflect the number of beats indicated by the time signature.

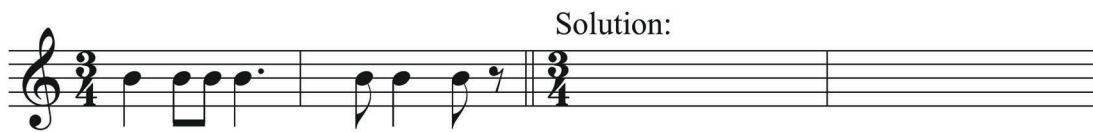
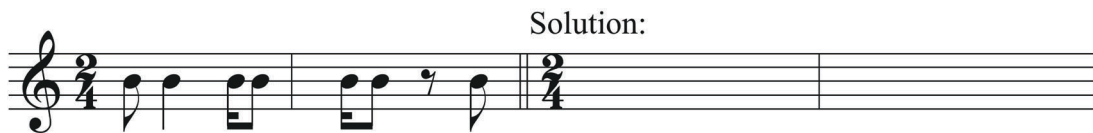




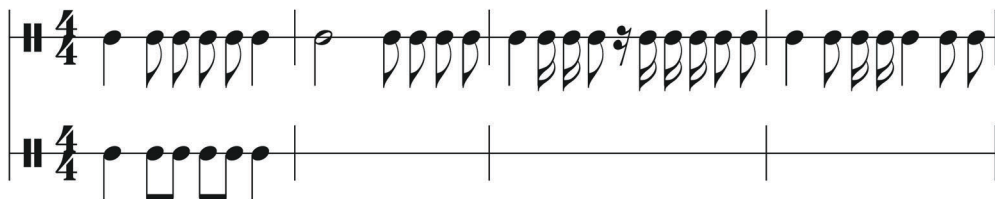
Add rests to fill out measures in the following.



Beam the notes given so that they reflect the beat structure of the time signature. Your solution may require dotted notes, or ties. Do not reorder note values. Circle syncopations that occur in each exercise.



Beam eighth and sixteenth notes in the following examples to a quarter note beat. Use a flag only when necessary.



Written Assignment 2: (1.7-1.9)

Complete the following table:

Time Signature	Meter (duple, triple, quadruple)	# of beats in a measure	Note value that receives a beat.
C			
	Duple		
2/2		2	
4/16			
3/4			
	Quadruple		
2/8		2	
	Triple		
♩			

Place barlines in the following examples so to reflect the number of beats indicated by the time signature.



Beam the notes given so that they reflect the beat structure of the time signature. Your solution may require dotted notes, or ties. Do not reorder note values. Circle syncopations that occur in each exercise.

Solution:



Solution:



Beam eighth and sixteenth notes in the following examples to a quarter note beat. Use a flag only when necessary.

The first system of the musical score consists of four staves. The top staff is in treble clef with a key signature of one sharp (F#) and a 2/4 time signature. It contains a melody of eighth and quarter notes. The second staff is a blank line. The third staff is in treble clef with a key signature of one sharp (F#) and a 3/4 time signature, containing a melody of eighth and quarter notes. The fourth staff is a blank line.

Write the following Major Scales using accidentals for each note as necessary:
A, B $\flat$, E, A $\flat$, E $\flat$, D $\flat$ Use bass and treble clef, 3 keys for each.

[illegible]

Match the terms and definitions by writing appropriate letters in the blanks provided:

Answer:		
	1. Key	a. tetrachord
	2. Whole step	b. Tonic
	3. Key Signature	c. Solfege for the dominant
	4. Four note group	d. Diatonic scale
	5. The first note in a scale	e. To map a set of intervals onto a new group of pitches
	6. Leads to the mediant	f. Consists of two half steps
	7. sol	g. 4 th scale degree
	8. Transposition	h. Solfege for the leading tone
	9. ti	i. Sharp
	10. an accidental	j. An ordering of sharps or flats that indicates the key of a piece of music

Identify the Scale Degree (number) and Functional Name for each of the notes below given the key:

Key D:

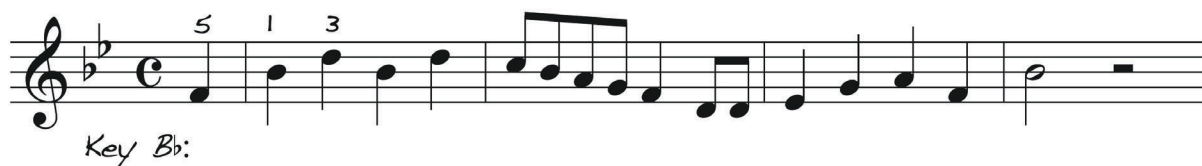
4, Subdom. _____

Key Eb:

7, Leading Tone _____

Identify the key and write the scale degree (number) for each of the notes in the melody:

a.

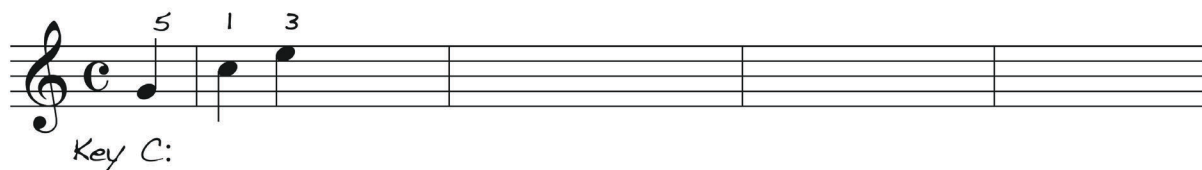


b.



Transpose the melodies from the previous exercise to the keys shown below. Hint: map the scale degree numbers you indicated above, onto the new Major Scale.

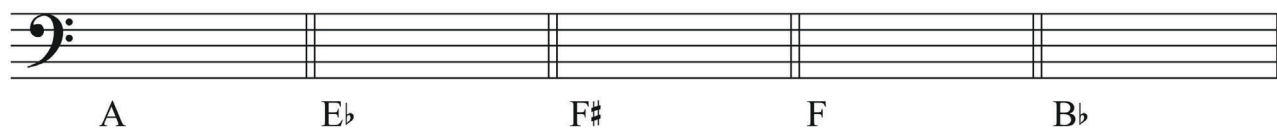
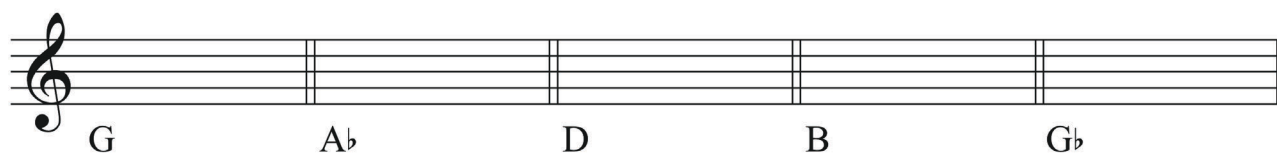
a.



b.

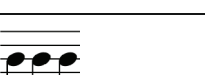


Write the following Key Signatures on the staff provided:



Written Assignment 3 (1.11-1.14)

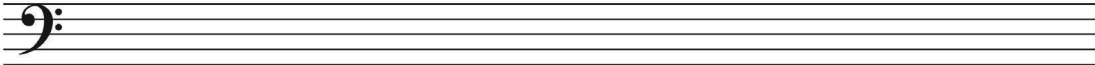
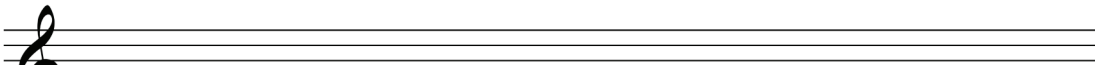
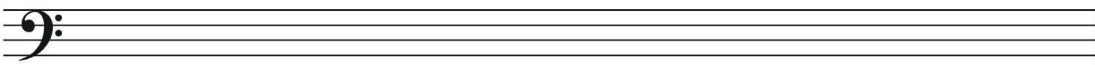
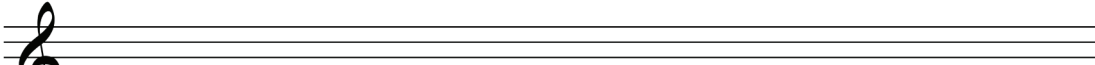
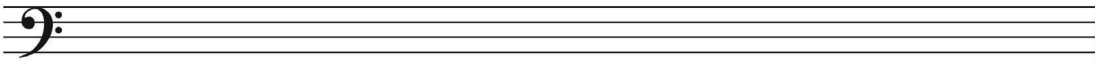
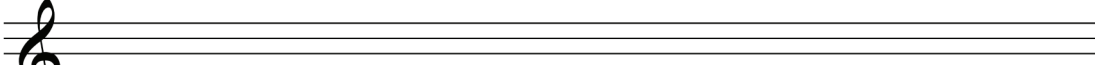
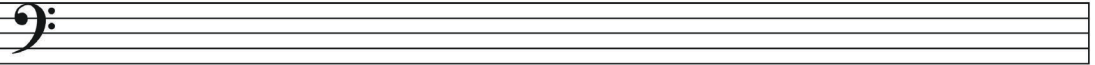
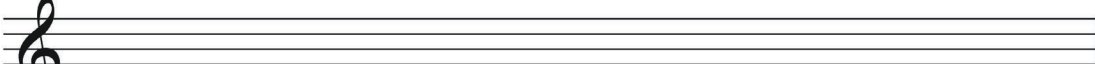
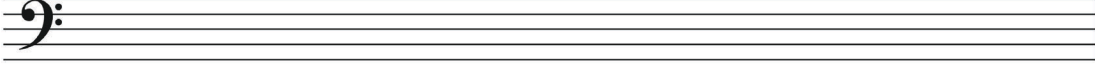
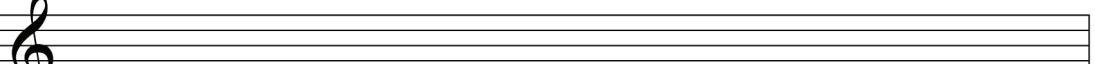
Complete the following table:

Example:	Simple/Compound (How is the beat divided/beamed)?	# of Beats?	Meter?
	<i>compound</i>	3	3
			
			
			
			
			
			

Complete the following table for simple and compound meters:

Time Signature	Meter (duple, triple, quadruple)	# of beats in a measure	Note value that receives a beat.
	<i>Triple</i>		
6 8		2	
3 2		2	
		4	
	<i>Quadruple</i>		
	<i>Quadruple</i>		
	<i>Duple</i>		
	<i>Duple</i>		
		2	
9 8	<i>Triple</i>		

Write the following Minor Scales using accidentals as necessary. They are all natural minor unless otherwise indicated:

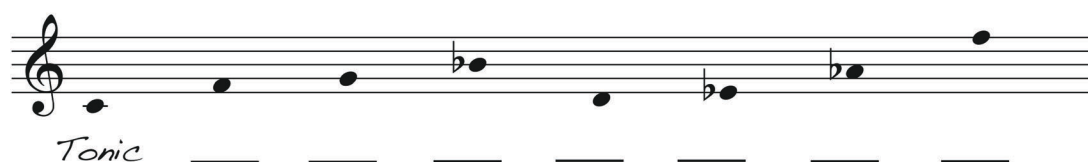
g	
a	
b b	
e harmonic	
g #	
f melodic	
b	
e	
c # harmonic	
f #	

Written Assignment 4 (1.15-1.19)

Match the terms and definitions by writing appropriate letters in the blanks provided:

Answer:		
	1. Relative	a. D Minor/D Major
	2. W-W-H	b. Minor Tetrachord I
	3. B $\flat$ minor	c. Solfege for the mediant
	4. Parallel	d. A Major/F $\sharp$ Minor
	5. W-H-W	e. To map a set of intervals onto a new group of pitches
	6. Leads to the tonic	f. Major Tetrachord
	7. mi	g. 5 flats
	8. Transposition	h. leading tone
	9. B Minor	i. 4 sharps
	10. C $\sharp$ Minor	j. 2 sharps

Identify the Functional Name for each of the notes below determine the minor key signature and write it on the staff (do not include altered notes of Harmonic or Melodic minor in the key signature):



Write Minor Key Signatures on the staff provided:



Identify the minor key and write the scale degree (number) for each of the notes in the melody.



Write the pitch for each interval type indicated on the staff. Write the resulting interval and quality in the blank provided.

Second Above:	Third Above:
Second Below:	Third Below:
Fourth Above:	Fifth above:
Fourth Below:	Fifth below:
Sixth Above:	Seventh Above:
Sixth Below:	Seventh Below:

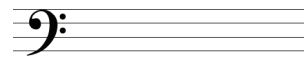
Write the Pitches, the Interval and its Quality for each example below.

Tonic of Ab Major and its Subdominant

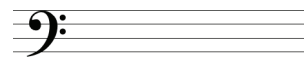
p4



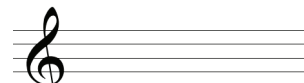
Leading tone of G Major and its Dominant _____



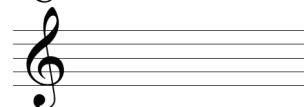
Supertonic of d minor and its Mediant _____



Submediant of Bb Major and its Tonic _____



Subdominant of a minor and its Supertonic _____



Construct the following intervals as indicated:

Above:			Below:		
M7	A5	m3	m3	P4	m2
M6	P5	m7	M2	M3	m6

Identify the intervals bracketed in each of the melodies below:

Nobody Knows the Trouble I've Seen

Invert the following intervals and write the quality for both the given interval and its inversion.

Inversion: m7	Inversion M2	Inversion
Inversion	Inversion	Inversion
Inversion	Inversion	Inversion

Unit Two

- 2.1 Triads
- 2.2 Triad Qualities
- 2.3 Diatonic Triads in Major and Minor Scales
- 2.1-2.3 Exercises
- 2.4 Chord Inversions
- 2.5 Figured Bass
- 2.6 Seventh Chords
- 2.7 Scale Degree Resolution and the Mm7 Chord
- 2.8 Chord Symbols
- 2.4-2.8 Exercises
- 2.9 Harmonic Function
- 2.10 The Harmonic Model
- 2.11 Keyboard Accompaniment Patterns
- 2.9-2.11 Exercises
- Unit Two Assignments

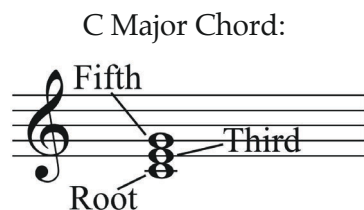
2.1

Objective: Students will identify, and construct triads written in three or four voices on treble, bass, and grand staff, and label them using roman numerals and figured bass when the key of the passage is given (2.1-5).

Triads:

Triads are groups of three scale pitches each separated by the interval of a third. Every scale/key contains a minimum of seven triads (one for each scale degree) each being one of four qualities determined by the intervals in the chord.

Triads have three members: a root—the note that names the triad, a third, and a fifth.

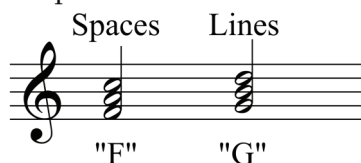


Triad: Spelled from C.

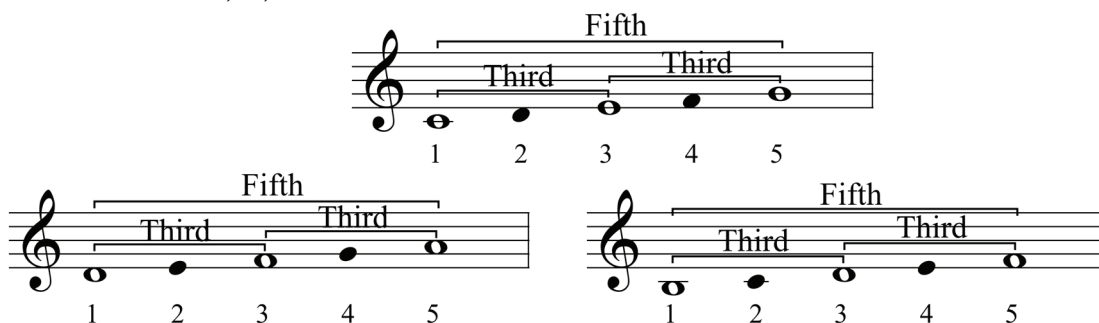
- C is the Root
- E is the Third
- G is the Fifth

The Root C names the chord. Root position chords are spelled in thirds. The interval between C-E is a M3, and the interval between C-G is a P5, making this triad a C Major Chord.

When a triad is spelled in root position its members occupy either all lines, or all spaces.



Triads can be generated using five note scale segments (pentachords). See examples below on C, D, and B.



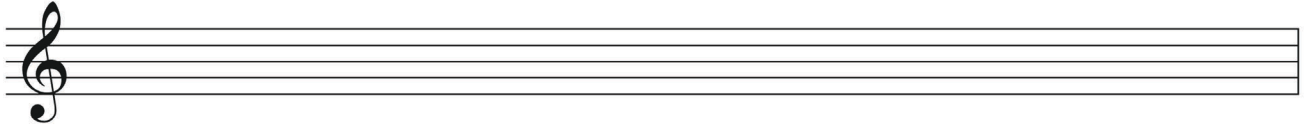
2.1

Spelling triads:

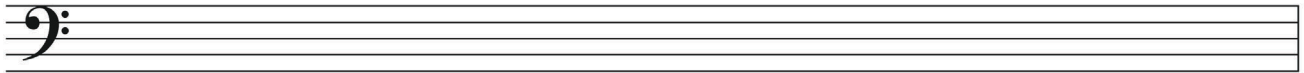
Write Triads for each scale member on the staves below.

- Place the key signature for the key indicated on the staff
- Write the major scale for each key
- Spell triads (using either all lines, or all spaces) for each note using ledger lines if needed:

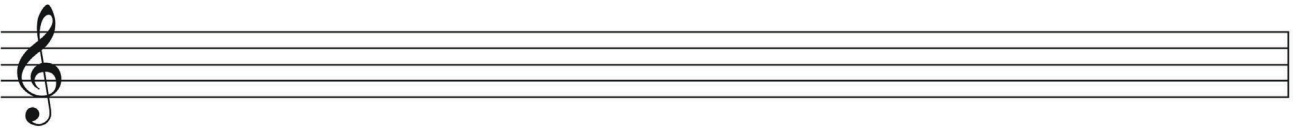
Key of B $\flat$:



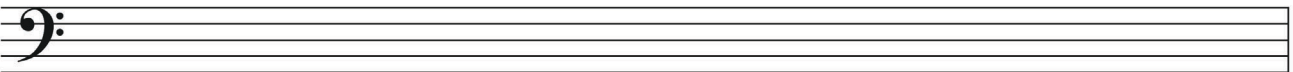
Key of G:



Key of F:



Key of A:



Triads spelled using the same root (e.g. G) are spelled the same regardless of key. For example: every G chord contains the letters G-B-D, and the key signature will determine whether an G chord is G-B-D, G-B $\flat$ -D or G $\flat$ -B $\flat$ -D $\flat$, or one of the other possibilities.

Write the seven spellings of triads using the letters of the musical alphabet in the table below. Use your solution to the examples above, or a keyboard for reference.

A-C-E	B- -	C- -	D- -	E- -	F- -	G- -
-------	--------	--------	--------	--------	--------	--------

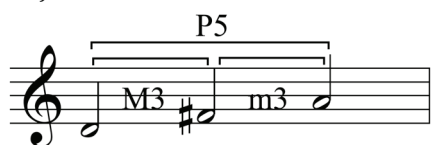
2.2

Objective: Students will identify and construct triads written in three or four voices on treble, bass, and grand staff, and label them using roman numerals and figured bass when the key of the passage is given (2.1-5).

Triad Qualities (Major, Minor, Diminished, Augmented):

Triads are one of four qualities: Major, minor, diminished, and Augmented, based on the intervals occurring between chord members.

Major:



Intervals:

- M3 between the Root and Third
- P5 between the Root and Fifth
- m3 between the Third and Fifth

The third between 1-3 of the major chord determines its quality. The fifth is perfect.

Minor:

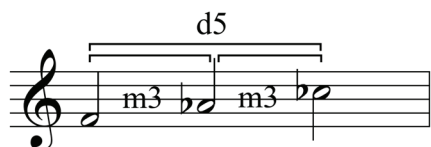


Intervals:

- m3 between the Root and Third
- P5 between the Root and Fifth
- M3 between the Third and Fifth

The third between 1-3 of the minor chord determines its quality. The fifth is perfect.

Diminished:



Intervals:

- m3 between the Root and Third
- d5 between the Root and Fifth
- m3 between the Third and Fifth

The d5 determines chord quality. Both thirds are m3.

Augmented:



Intervals:

- M3 between the Root and Third
- P5 between the Root and Fifth
- M3 between the Third and Fifth.

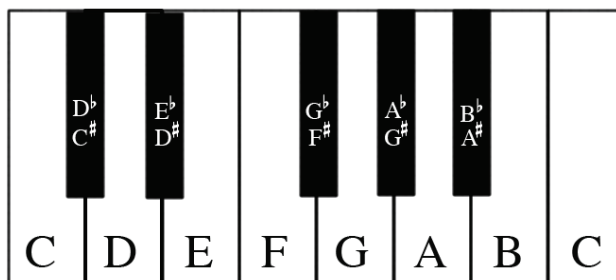
The fifth (A5) determines the quality of the Augmented chord. The thirds are both M3.

Constructing Triads: (the following are methods to construct triads)

Each triad type may be represented by Arabic numerals (e.g. major chord = 1-3-5). On the table, “♭” means to lower the third or fifth, “+” means to raise the 5th. With this system, triads are easily derived one from the other. For example, to change an A major chord (A-C ♯E) into a minor chord (A-C-E), simply “♭” (lower) the third by a semitone. The table below shows examples for each chord type.

Augmented	Major	Minor	Diminished
1-3-5+,	1-3-5	1- $\flat$ 3-5	1- $\flat$ 3- $\flat$ 5

Use a keyboard for reference:



EXAMPLES	Augmented (1-3-5+)	Major (1-3-5)	Minor (1- $\flat$ 3-5)	Diminished (1- $\flat$ 3- $\flat$ 5)
B-D-F (dim)	Raise the 3 rd by a semitone, and the 5 th by a whole tone: B-D $\sharp$F $\times$	Raise the 3 rd and 5 th by one semitone: B-D $\sharp$F $\sharp$	Raise the 5 th by one semitone: B-D-F $\sharp$	B-D-F (dim)
A $\flat$C-E $\flat$ (Maj)	Raise the 5 th by one semitone: A $\flat$C-E	A $\flat$C-E $\flat$ (Maj)	Lower the third by one semitone: A $\flat$C $\flat$E $\flat$	Lower the third by a semitone and the fifth by a whole tone: A $\flat$C $\flat$E $\flat\flat$
G-B $\flat$D (min)	Raise the third and fifth by a semitone: G-B-D $\sharp$	Raise the third by a semitone: G-B-D	G-B $\flat$D (min)	Lower the fifth by a semitone: G-B $\flat$D $\flat$
E-G $\sharp$B $\sharp$ (Aug)	E-G $\sharp$B $\sharp$ (Aug)	Lower the fifth by a semitone: E-G $\sharp$B	Lower the fifth and third by a semitone: E-G-B	Lower the third by a semitone and the fifth by a whole tone: E-G-B $\flat$

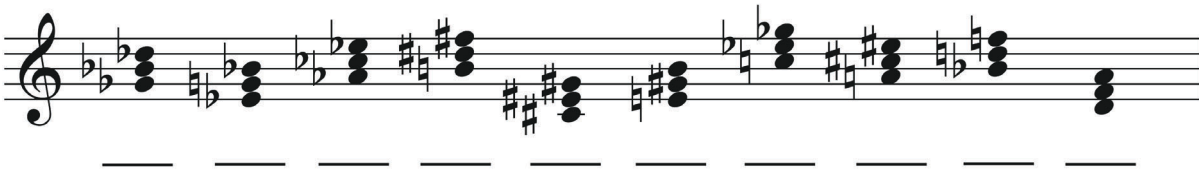
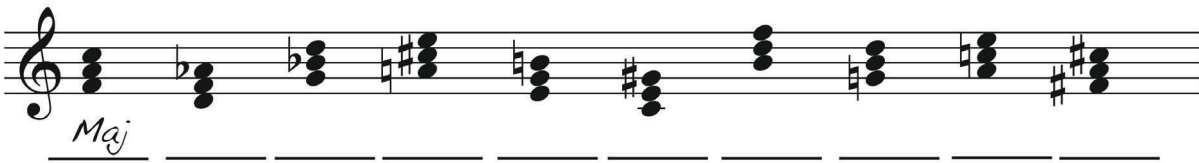
Strategy For Constructing Triads Given One Pitch:

The strategy below outlines the process for constructing a triad given one chord member.

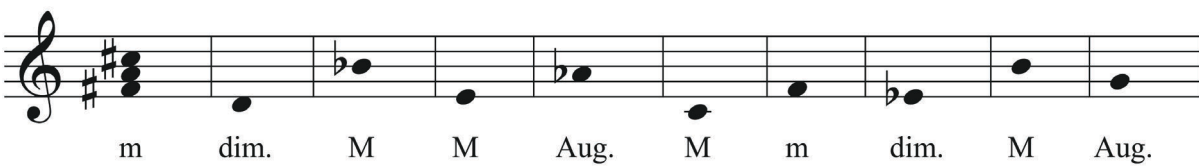
Given the Root:	Given the Third:	Given the Fifth:
1. Spell the triad above the root adding the third and fifth 2. Check the intervals 3. Finish spelling the triad	1. Add the fifth and root a third above and below respectively 2. Check intervals 3. Finish spelling the triad	1. Add the third and root a third and fifth below respectively 2. Check intervals 3. Finish spelling the triad
(add 3rd and 5th) Major Root	(add 5th and root) Minor Third	(add 3rd and root) Diminished Fifth

2.2

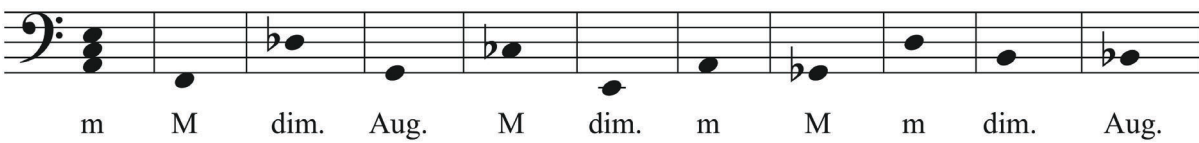
Examine the following triads and identify them as Major (Maj), Minor (min), Diminished (dim. or °), or Augmented (Aug. or +).



Spell Triads given the root and chord quality. Put them all in Root Position as is shown:



Spelling a chords in root position.



Objective: Students will identify, and construct triads written in three or four voices on treble, bass, and grand staff, and label them using roman numerals and figured bass when the key of the passage is given (2.1-5).

Diatonic Triads of Major and Minor Scales:

Triads can be formed on each member of a scale. Roman numerals indicating the scale degree of a chord in a key, and its quality are the most common analytical tool for labeling/analyzing chords. Functional names introduced earlier are also applicable (I = Tonic, ii = supertonic etc.).

MAJOR SCALE: Diatonic chords for each scale degree of the D Major scale.		
Chord Type:	Scale Degree:	Roman Numeral:
Major Chords	1, 4, 5	I, IV, V
Minor Chords	2, 3, 6	ii, iii, vi
Diminished Chords	7	vii ^o

1	2	3	4	5	6	7	8
M	m	m	M	M	m	dim	M
I	ii	iii	IV	V	vi	vii ^o	I

NATURAL MINOR SCALE: The chords formed here are identical to those for the Major scale. Scale degree and Roman Numerals are rotated for the new tonic, B.		
Chord Type:	Scale Degree:	Roman Numeral:
Major Chords	3, 6, 7	III, VI, VII
Minor Chords	1, 4, 5	i, iv, v
Diminished Chords	2	ii ^o

1	2	3	4	5	6	7	8
m	dim	M	m	m	M	M	m
i	ii ^o	III	iv	v	VI	VII	i

HARMONIC MINOR SCALE: When the seventh scale degree is raised (A $\sharp$) it creates several new chords: III+ (used infrequently, most often appears as III), and V, and vii $^\circ$, both of which are vital for harmonizing melodies in minor.

Chord Type:	Scale Degree:	Roman Numeral:
Major Chords	5, 6	III, V, VI
Minor Chords	1, 4	i, iv
Diminished Chords	2, 7	ii $^\circ$, vii $^\circ$
Augmented Chords	3	(III+)

MELODIC MINOR SCALE: The addition of the raised sixth scale degree (G $\sharp$) is useful for melodic writing, but not as important for harmonizing melodies using the minor scale. III appears more often as Major. The III+, IV, vi $^\circ$ appear infrequently in the literature.

Chord Type:	Scale Degree:	Roman Numeral:
Major Chords	4, 5	III, IV, V
Minor Chords	1, 2	i, ii
Diminished Chords	6, 7	vi $^\circ$, vii $^\circ$
Augmented Chords	3	(III+)

Given the key, label the quality and roman numeral for each chord:

Key: A minor

m, i _____ _____ _____ _____

Key: G Major

M, I _____ _____ _____ _____

2.1-2.3 Exercises

1. Identify the following triads listing the root and quality. You can abbreviate Major=Maj., Minor=m, Diminished=dim, and Augmented=Aug.

Three staves of musical notation for triad identification exercises. Each staff contains 10 triads. The first staff is in treble clef, the second in bass clef, and the third in treble clef. Some triads are labeled with handwritten text: *F#m*, *Bm*, and *DAug.*

2. Write the following triads given the root and quality:

Four staves of musical notation for triad construction exercises. Each staff contains 12 notes, each with a root and quality label below it. The first staff is in bass clef, the second in treble clef, the third in bass clef, and the fourth in treble clef.

Staff 1 (Bass Clef):
 M, m, dim., Aug., m, M, dim, m, M, Aug, m

Staff 2 (Treble Clef):
 Aug., m, dim, M, m, M, dim., m, M, Aug., M

Staff 3 (Bass Clef):
 dim., M, Aug., m, M, m, dim., M, m, dim., m

Staff 4 (Treble Clef):
 m, M, m, dim., Aug., m, m, M, m, Aug., m

2.1-2.3 Exercises

3. Write the Roman Numeral and quality for each triad below given the triad and the key.

Key F:

M, I _____ _____ _____ _____

Key: G #m

m, i _____ _____ _____ _____

Key Gm:

m, i _____ _____ _____ _____

Key Eb:

M, I _____ _____ _____ _____

4. Write the triad given a chord member and quality:

dim. M m Aug. m M

M dim. M Aug. M dim.

m M dim. Aug. m dim. M

2.1-2.3 Exercises

3 5 5 3 3 R 3

M m dim. M M m Aug.

5. Identify the triads indicating the root and quality on each blank for this excerpt from Bach's *Two Part Invention* #10. There are two cases where the chord is not in Root Position; reorder the pitches to find the root (spell in thirds). Circle the one chord that is not in the key.

GMaj. _ _ _ _ _

_ _ _ _ _

6. Identify triads indicating the root, and quality on each blank for this excerpt from Schumann Op. 68, *Album for the Young, Wilder Reiter*. Respell chords that are not in root position to determine the root.

E _ _ _ _

Objective: Students will identify and construct triads written in three or four voices on treble, bass, and grand staff, and label them using roman numerals and figured bass, or chord symbols when the key of the passage is given (2.1-5, 8).

Inverted Triads:

When a note other than the root is in the bass, the chord is inverted. There are three possible positions: root, first, and second inversion. Pitches above the bass may be ordered in any way. Reduce intervals above the bass to simple intervals to determine the figured bass.

Root Position:

The root is in bass voice.



Third between C-E
Fifth between C-G
Third between E-G

The root of the chord is in the bass voice. To identify a chord, always place it in root position. Root position chords sound stable.

First Inversion:

The third is in the bass voice.



Third between C-E
Fifth between C-G
Third between E-G

The third of the chord is in the bass voice. First inversion chords are less stable than root position chords.

Second Inversion:

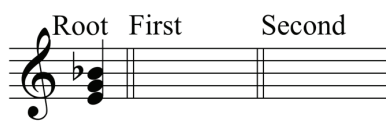
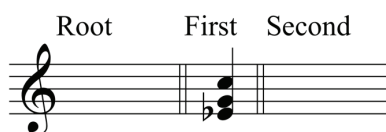
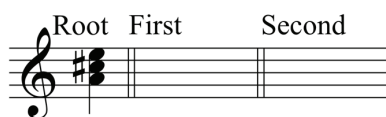
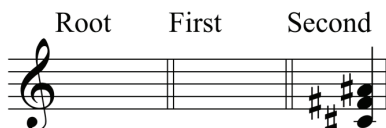
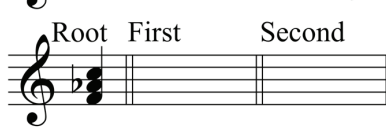
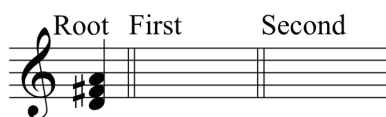
The fifth is in the bass voice.

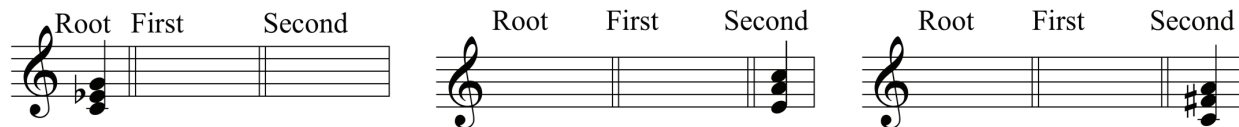


Sixth between G-E (inverted third)
Fourth between G-C (inverted fifth)
Third between C-E

The fifth of the chord is in the bass voice. Second inversion chords are the least stable of triad inversions and are used only in specific contexts.

Spell inversions given root, first, or second inversion for these triads:





Identifying the Inversion:

To determine a chord's inversion, first identify the root. Then examine the bass to determine the inversion:

	Example 1: Two chords on the treble staff. Reorder the pitches to form a triad. Each four-note group contains the pitches C-E-G.
	Vertically align the notes of the chord. The E and G in the bass are the third and fifth of the chord; and the inversions are first and second.

	Example 2: Contains three chords, one in each measure. Combine the bass and treble clef to determine each triad.
	The chords are C, G, and C. Any clef may be used to identify the triad in root position.
	The bass of the first chord is the root C. The second chord has a D, the fifth of the chord in the bass and is in second inversion. The third chord has an E, the third of the chord in the bass and is in first inversion.

	Example 3: Contains seven chords. In this example the inner voices (alto, and tenor) help us identify the triads.
	Chords 1-2, and 5-6 are the same triad in different inversions D Major and E minor respectively. 3, 4, and 7 are different chords. E minor, A Major, and B minor.

	Chords 1-D Major, 4-A Major are in root position. Chords 2-D Major, 3-E minor, 5-E minor, and 7-B minor are all in first inversion. Chord 6-E minor, is in second inversion.
--	---

The Role of the Bass Voice:

The bass voice often serves several roles harmonic, rhythmic, and melodic.

Below the bass voice is rhythmic and harmonic. The first note in each measure is the root of the chord.

These two show the same sequence of chords with two different realizations of the bass voice. Inverted chords are marked with an asterisk.

*Inverted Chords

Objective: Students will identify and construct triads written in three or four voices on treble, bass, and grand staff, and label them using roman numerals and figured bass when the key of the passage is given (2.1-5).

Figured Bass:

Bass Figures bass are Arabic numerals placed underneath the grand staff representing diatonic intervals above a bass pitch. In performance, figured bass accompanies a soprano melody and a bass line, as in this example from Archangelo Corelli: Sonata in D Major Op. 5, no.1, mvt. III. In the example, the keyboard performer is expected to realize the chords of the piece using the bass line and figured bass intervals.

Simple intervals are ordered Largest→Smallest (top→bottom)

ROOT POSITION

In root position, the figured bass indicates a fifth (C-G) and a third (C-E) above the bass.

FIRST INVERSION

In first inversion, the figured bass indicates a sixth (E-C) and a third (E-G) above the bass.

SECOND INVERSION

In second inversion, the figured bass indicates a sixth (G-E) and a fourth (G-C) above the bass.

Identify the triads in the Corelli example. Write the triads in root position and fill in the table below with root+quality followed by roman numerals in the key of D Major:

Triad (root and quality)												
m. 1	m. 2		m. 3		m. 4		m. 5			m. 6		m. 7
Roman Numerals (upper case for major, lower case for minor) Key of D:												

For the following write the chord above each figured bass and chord quality given (M = Major, m = minor, dim = Diminished). In each case determine the chord first by spelling it in thirds then write the pitches above the given bass. In root position the root is in the bass, in first inversion, the third, and in second the fifth of the chord is in the bass.

m m m M dim. m
 6 6 6 6 6 6
 4 3 4 4 3 4

M m m M m dim.
 6 6 6 6 6 5
 3 3 3 4 4 3

m m m M M M
 6 6 6 6 5 6
 4 3 4 3 3 3

Objective: Students will recognize and spell seventh chords in major and minor keys. Students will identify third inversion chords (2.6).

Seventh Chords:

The scale chordal seventh is a third higher than the fifth, and a seventh from the root. Seventh chords contain: Root-R, Third-3, Fifth-5, and Seventh-7. The quality of the seventh: major, minor, or diminished is paired with the quality of the triad when naming the chord. See the C Major Major 7th (MM7) below.



Seventh chords are named by the quality of the Triad (M, m, d, A) and the quality of the Seventh (M, m, d). The name of each seventh chord is the Root+triad quality+seventh for instance: G Major minor 7th, or G Mm7.

SEVENTH CHORDS IN THE MAJOR SCALE:	
	Tonic and subdominant triads (I, IV) have a Major 7 th above their roots C-B, and F-E. These seventh chords are called Major Major seventh or MM7 Chords.
	The dominant triad (V) will have a minor 7 th above its root, G-F. This chord is a major, minor seventh chord, or Mm7. It is one of the most important seventh chords in tonal music.
	The supertonic, mediant, and submediant triads (ii, iii, vi) have a minor 7 th above their roots, D-C, E-D, A-G. These are all minor, minor seventh chords, or mm7.
	The leading tone triad (vii ^o) has a minor 7 th above its root. This chord is a diminished minor seventh, dm7, or is commonly known as a half diminished seventh chord (vii ^o 7).
SEVENTH CHORDS IN THE HARMONIC MINOR SCALE:	
	The leading tone triad (vii ^o) in the harmonic minor scale has a diminished 7 th above its root. This chord is a diminished, diminished seventh, dd7. It is commonly known as the fully diminished seventh chord (vii ^o 7). For a complete list see the table below.

Diatonic Seventh Chords in the Major Scale:	
Major major seventh: MM7	I(7), IV7
Major minor seventh: Mm7	V7
Minor minor seventh: mm7	ii7, iii7, vi7
Diminished minor seventh: dm7	viiø7

Diatonic Seventh Chords in the Harmonic Minor Scale:	
Major major seventh: MM7	III(+7), VI7
Major minor seventh: Mm7	V7
Minor minor seventh: mm7	i(7), iv7
Diminished minor seventh: dm7	iiø7
Diminished diminished seventh: dd7	viiø7

Seventh Chords in Common Use:

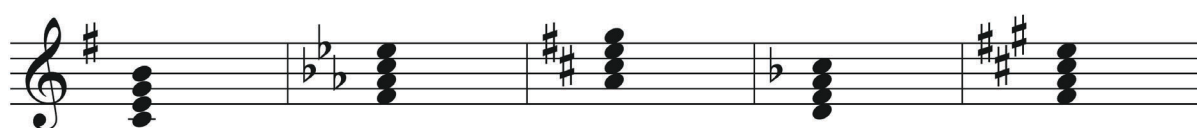
The Mm7 chord V7, or dominant seventh chord is used frequently; as are ii7, and IV7.

The use of the seventh chords varies between musical styles.

Given a Major Key and a seventh chord, identify the chord as one of the types of seventh chords, list its roman numeral in the given key and add the appropriate chord symbol above the staff.



E: mm7
vi7 Bb: _____ B: _____ Ab: _____ Db: _____



G: _____ Eb: _____ D: _____ F: _____ A: _____

Figured Bass for Seventh Chords, Third Inversion:

There are four common ways a seventh chord can appear: root position, first, second or third inversion. Determining these new inversions requires the addition of a number to the figured bass indicating the interval of the seventh.

Inversions of the Mm7, Key of F Major:

1.	2.	3.	4.	
				1. Root Position: C-B $\flat$ (7 th), C-G (5 th), C-E (3 rd) 2. First Inversion: E-C (6 th), E-B $\flat$ (5 th), E-G (3 rd) 3. Second Inversion: G-E (6 th), G-C (4 th), G-B $\flat$ (3 rd) 4. Third Inversion: B $\flat$ -G (6 th), B $\flat$ -E (4 th), B $\flat$ -C (2 nd)
7	6	6	6	
5	5	4	4	
F: V 3	3	3	2	

Identify seventh chords in Bach: *O wir arme Sünder* (boxed). Label each with its root+triad quality+seventh, The key is D; determine Roman numerals and figured bass for each chord. Note: the second chord lacks a third (C#).

The 371 chorale harmonizations are an important source for the study of diatonic harmony and voice-leading.

Bach: O wir armen Sünder

D:

Objective: Students will recognize resolutions of Mm7 chord tones to understand dominant function (2.7).

Scale Degree Resolution and the Mm7 chord:

Scale degrees 1-3-5 are the tonic; and 5-7-2-4 are the dominant. Pitches in the dominant (V7) have a tendency to resolve to the pitches of the tonic (I) chord. 2.9-10 outline models that draw upon scale degree resolution.

	Resolutions of the scale are shown in linear form. The major scale is in the key of F, the tonic triad is, F-A-C-F, and all other pitches in the scale resolve to one of its members.
	Here scale degrees of the Dominant, V7, (C7) are shown resolving to tones of the Tonic, I, (F).

The example below shows scale degree resolution for inversions of the dominant Mm7 (V7) resolving to the tonic chord in F Major.

When the Mm7 chord appears in root position the 5th scale degree resolves to the tonic, C→F (m. 1) resulting in a tonic chord with a tripled root, and a third. When the 5th scale degree (C) appears in another voice (Soprano, Alto, or Tenor), it is held over as a common tone between the two chords. Practice aural recognition of scale degree resolutions: 2-1, 4-3, 7-8.

Scale Degrees:

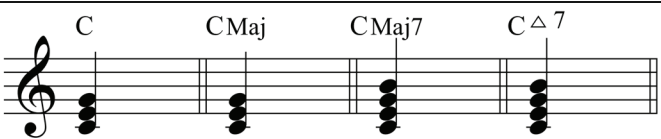
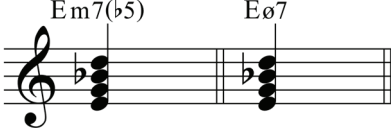
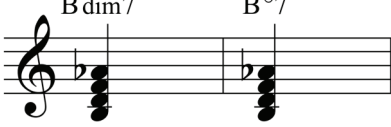
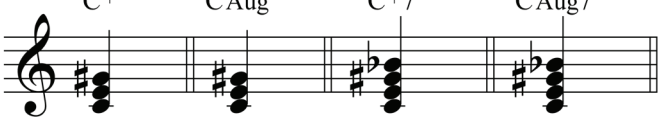
4	3	2	1	4	3	5	5
7	1	5	5	7	1	2	1
2	1	4	3	5	5	7	1
5	1	7	1	2	1	4	3
Inversions: 7	6	6	6				
5	5	5	5	4	5	4	6
3	3	3	3	3	3	2	3

Objective: Students will recognize and spell chords using chord symbols (2.8).

Chord Symbols:

Chord symbols are a useful shorthand method of representing chords. The table below shows the common chord symbols and variants. Sometimes the chord inversion is specified when alternate bass pitches appear in the chord symbol. G/B for instance is a G chord with a B in the bass; a first inversion G chord.

Chord symbols are a useful starting point for analyzing chromatic passages, or music containing many quick key changes.

Common Chord Symbols:	
 C CMaj CMaj7 CΔ7	Major and MM7 chords have several common variants. The Δ is fairly common especially when paired with the seventh.
 Dm Dmin. D- Dmin7 D-7 Dm7	Minor chords have many variants using "min" or "-". These are all very common.
 F7	The Mm7 seventh chord uses this form, but it may include chord extensions (9, 11, 13) etc. These are common in jazz.
 Em7(b5) E$\emptyset$7	Diminished minor seventh, dm7, or half diminished chord has two common variants.
 Bdim7 B$^{\circ}$7	The fully diminished seventh chord has two common variants.
 C+ CAug C+7 CAug7	Augmented chords are realized using +, or Aug. The C+7, is the most common symbol. This chord appears most often in minor as a dominant (V+7).

2.4-2.8 Exercises

1. Spell the triads and seventh chords for each bass note given below.

m	M	M	m	dim.	m
6	6	6	6	6	6
4	3	4	3	3	4

m	M	M	m	dim.	m
6	6	6	6	6	6
4	3	4	3	3	4

M	M	m	m	dim.	M
6	6	6	7	6	6
4	5	4	5	5	5
3	3	2	3	3	3

2. Analyze the triads and seventh chords in the following examples, writing Chord Symbols, Roman Numerals, and Figured Bass for each as shown. Indicate alternate bass for Chord Symbols that appear over inverted chords (e.g. m.2 is G7/B).

Key C: I ⁵ / ₃

Key Gm: i ⁵ / ₃	Key Bb:

2.4-2.8 Exercises

D

Key D: I $\begin{smallmatrix} 5 \\ 3 \end{smallmatrix}$

3. Write the chords indicated in the following excerpts onto the staves below, as triads or seventh chords in the proper inversion. Label with Chord Symbols and Figured Bass.

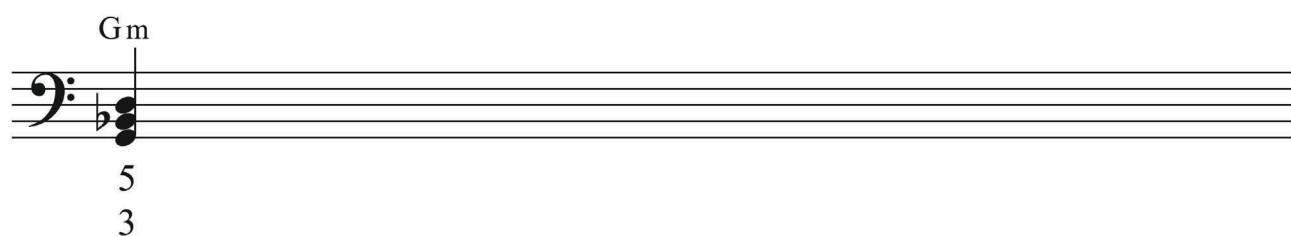
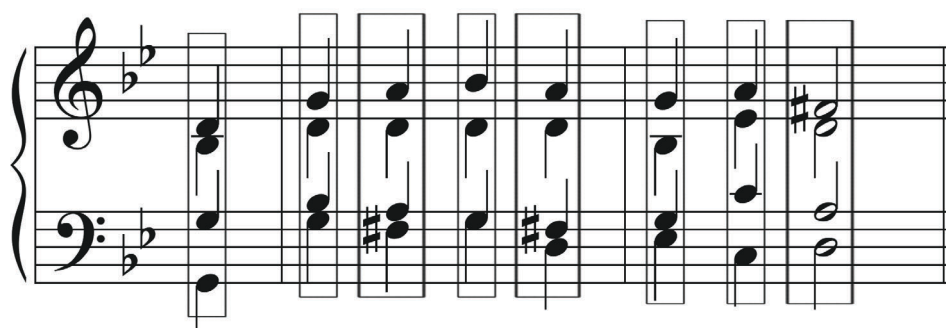
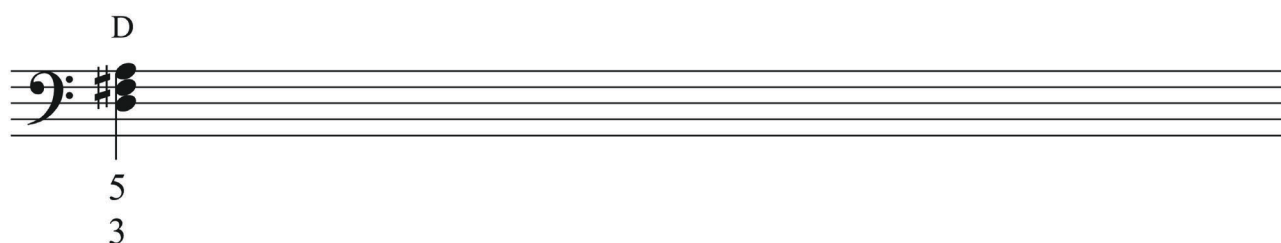
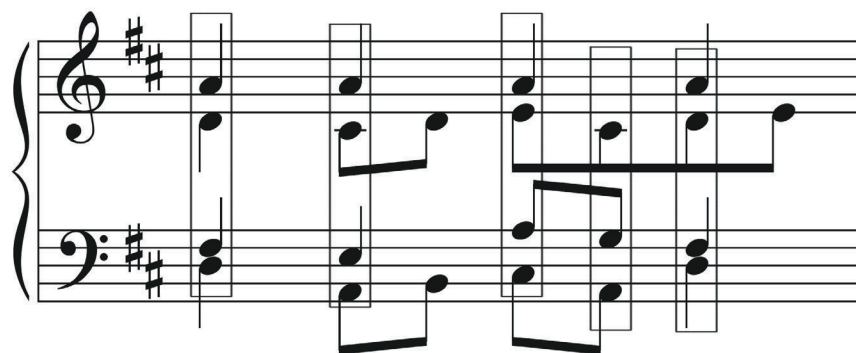
Em

5
3

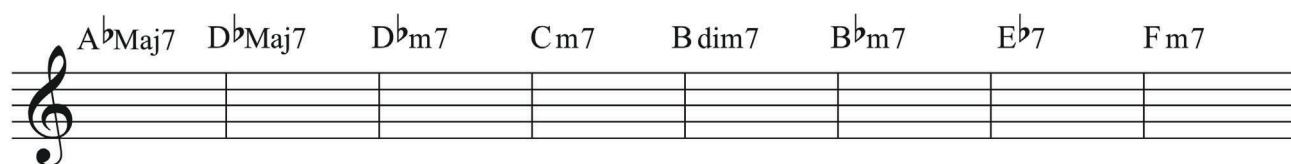
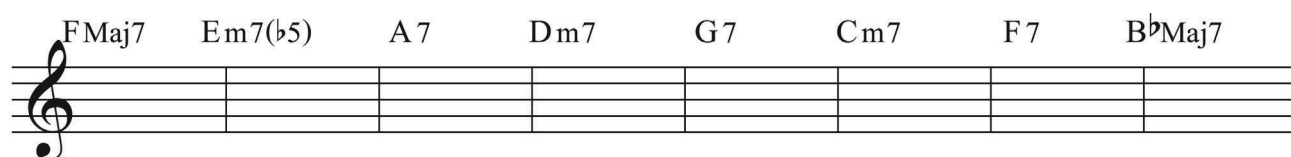
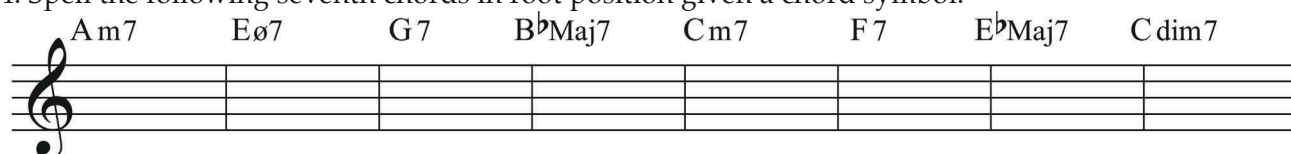
G

5
3

2.4-2.8 Exercises



4. Spell the following seventh chords in root position given a chord symbol:



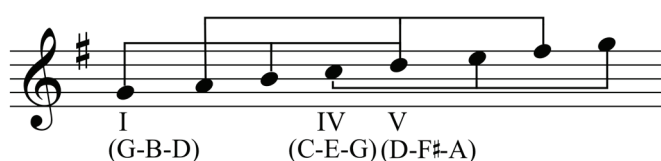
Objective: Students recognize chord functions and expansions of the tonic chord (2.9).

Harmonic Function-Primary Triads:

Scale degree names also serve for triads. A triad on the first scale degree is the tonic, the one on the fifth is the dominant, the sixth is the submediant, and so on.

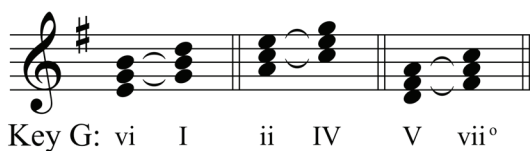
Triads are grouped into three functional categories tonic, dominant, and predominant (subdominant). Primary triads; in each key are the Tonic (I/i), subdominant (IV/iv), and dominant (V/V7). These chord functions enable harmonization of diatonic melodies:

Tonic, dominant, and subdominant generate the notes of the scale when combined and make possible harmonization of diatonic melodies using only these chords. Many times, tonic and dominant will suffice.



The Tonic, Subdominant, and Dominant chords generate all of the notes in the scale. These three chords are called Primary Triads.

Chords related by the interval of a third share two common tones making them interchangeable with primary triads. This expands the number of chords that may be chosen to fulfill a specific harmonic function (T, Pd, D). The harmonic model in the next section explains their use.



Chords related by the interval of a third share two common tones. Chords ii/IV can be used interchangeably, vi is sometimes substituted for I, and vii° can be used in place of V, especially the V chord in second inversion.

Tonic and Dominant:

The tonic is the tonic of the key; I or i chord. Tonic function is labeled T, and it appears with the dominant and predominant in sequences of harmonies called chord progressions.

Dominant:

The dominant includes the V, V7 and vii°, vii°7 or leading tone chords. The dominant function is labeled D. Chord sequences of tonic and dominant are often T-D-T.

Subdominant, or Predominant:

The ii, ii7, ii°, and ii°7; IV, IV7, iv, and iv7 are sub or predominant chords. This category may also include vi, vi7, VI, VI7. Function is "Pd." Predominant chords may appear T-Pd-T, or precede dominant function as T-Pd-D-T. They may also substitute for T in: T-(T or Pd)-D-T, or truncated as (T or Pd)-D-T.

Contextual Analysis—Phrase Models:

Phrase models are expansions of the tonic chord combined with dominant and predominant chords. Expansions prolong the influence of a chord (often the tonic). Most chord progressions will the three models below.

1. Tonic-Dominant-Tonic (T-D-T)
2. Tonic-Predominant-Dominant-Tonic (T-Pd-D-T)
3. Tonic-Predominant-Tonic (T-Pd-T)

Tonic-Dominant-Tonic (T-D-T). One of the most common models. Often paired with 8-7-8, 3-2-1, or 1-2-3 bass voice progressions. 1-2-3 is shown here.

⑨ Beethoven: Sonata, Op. 14, no. 2

G: I
T

V⁶₄
D³

I⁶
T

Tonic-Predominant-Dominant-Tonic (T-Pd-D-T): Often paired with: 1-2-5-1, 1-4-5-1, 1-6-5-1, 1-6-7-1, 3-4-5-1, and 3-2-5-1 bass voice progressions. 3-2-5-1 is shown here.

②② Mozart: K. 310, Piano Sonata

C: I⁶
T

ii
Pd

V⁷
D

I
T

Tonic-Predominant-Tonic (T-Pd-T): Embellishes the tonic and is often paired with 1-4-1, 1-1-1 bass progressions. In the example below, Beethoven uses iv, and VI as Pd. Later we will explore this example to fully understand the use of chromatic pitches.

⑥⑤ Beethoven: Bagatelle, Op. 19

Gm: i
T

VI⁽⁶⁾
Pd

i⁴
Pd

I⁶
T

iv
Pd

I⁶
T

iv
Pd

I⁶
T

iv
Pd

I⁶
T

iv⁶
Pd

I
T

Objective: Students will use harmonic and phrase models to harmonize melodies (2.10).

Harmonic Model: Primary, Secondary and Tertiary triads:

The harmonic model maps harmonies to the pitches of the major scale; offering two to three chord options primary, secondary, or tertiary for each pitch in the scale. At the primary level, the harmonic and phrase models generate identical results. Secondary or tertiary chords substitute for primary when suggested by the musical context. The following examples apply the phrase model adding secondary chords as suggested by the harmonic model.

1. Primary: I, IV, V
2. Secondary: ii, vi, vii°
3. Tertiary: iii, Secondary Dominant (*Sec.*), etc.

Primary:	I	V	I	IV/V	I/V	IV	V	I
Secondary:	vi	ii/vii°	vi	ii/vii°	iii	ii/vi	vii°	vi
Tertiary:	IV/ii ⁷	<i>Sec.</i>	iii			V/V	iii	IV/ii ⁷

To apply the model, assign a chord to each note of a melody. All examples below follow the model except the third where the ii chord is used as a predominant chord creating a (T)-Pd-D-T progression. The harmonic model does not dictate chord inversions. Use inversions to create melodic bass lines.

V I V I ii* V I I V I I IV V I

The following adds inverted chords to the previous example. Notice how the tones of the dominant chord (5-7-2) resolve the same direction whether they appear in the bass or soprano.

5 6 / 3 3 5 6 / 3 4 6 7 / 3 6 / 3 6 / 3

Harmonic Rhythm and Phrase Models:

Harmonic rhythm is the rate at which chords progress (e.g. by beat, measure etc.). Most melodies are harmonized with one, or more chords per measure. Explore possibilities using the harmonic and phrase models.

The harmonic rhythm is guided by several factors:

- Tonic, Dominant, and Subdominant pitches,
- Melodic outlining of triads,
- Metrically accented pitches, their resolution, and melodic patterns,
- Chord progression from weak beat to strong beats,
- The application of the phrase model (e.g. T-D-T).

Employ the following strategy for harmonizing melodies:

- Apply harmonies to melodic pitches using the phrase model or harmonic model at the primary level,
- Examine the harmonization, does it follow one of the phrase models (T-D-T; T-Pd-T; T-Pd-D-T)? If not modify the progression,
- Add secondary and tertiary chords as substitutes for primary chords using the harmonic model,
- Check the harmonic rhythm. Does the sequence of chords generate a similar number of chords per measure?

Examples:

Use primary triads, adding secondary chords as substitutes for primary triads when possible.

The first five measures of the phrase below arpeggiate a tonic chord implying harmonization with that chord. The second part of the phrase begins with the tonic, but soon departs. IV harmonizes the 4th scale degree in measure six; V7 would also work there. The phrase ends on a dominant chord (V).

Applying the phrase model can look at this melody in more depth. In the first row of letters each pitch is analyzed as T (tonic-I), D (dominant-V), or Pd (predominant-IV). In the second row, the number of harmonies is reduced based on phrase models (T-D-T) and (T-Pd-D-T).

1. Each note of the melody is mapped to a primary triad using the phrase model.

2. The number of chords is reduced based on expansions (T-D-T; T-Pd-D-T).

When a chord repeats for several measures, substitutions can be used. From the harmonic model, vi is a secondary, or substitute chord for I. It will work in mm. 3-4.

The second half of the phrase (mm. 5-8) is harmonized: T-Pd-T. It could also be T-D-T using a Mm7 to support G4. This would be effective with inverted chords, bass: 1-7-1; or 1-2-3, to accompany the soprano 5-4-3.

Finish by adding inversions and an accompaniment pattern (2.11); an arpeggiated figure called Alberti Bass. Alberti Bass gets its name from Domenico Alberti (1710-1740) who used arpeggiated, or broken chord figures extensively in his music, though he was not the first to do so, his name is synonymous with this type of figure in keyboard music. Notice that some tones in the melody are not in the chord. These tones are called non-chord tones, and will be addressed in unit three.

In the next example the harmonic rhythm increases at the end of the phrase as it moves towards the dominant. Tonic and dominant chords are used in the first two measures implied by beats 1, 3, 4 of the measure. The third measure could have been harmonized by a tonic chord; members of that triad occur on beats 1, 2, and 4, but the use of the ii^{o7} prepares the arrival of the dominant generating T-Pd-D. Further the ii^{o7} supports the 4th scale degree on the relatively accented beat of the measure. The phrase model is: T-D-T-Pd-D. It implies the need for a second phrase to complete the cadence on V that concludes the phrase.

Am: i VI⁷ V ^{$\frac{6}{4}$} ₃ VI ii[°]₃⁶ V

Substitute chords introduce a richer palette of harmonies, and varied harmonic motion generates instability that contributes to the perception of motion toward cadences.

The next example uses a harmonic rhythm of two chords per measure. The A⁴ on beat one of measure one embellishes of the dominant-G⁴. A ii (Pd) chord works well here. Measure two outlines a tonic chord. The substitution of vi for I on beat three continues the two chord per measure harmonic rhythm. In m. 3 the melody outlines a dominant Mm7 (V7) chord. Here the vii[°] on beat three leads to the tonic of the next measure.

ii vi vii[°]

Here is the harmonization with a keyboard accompaniment pattern. Arrows in this example show that the soprano and bass lines move contrary to each other. Note intervals between bass and soprano notes are often 3^{rds} or 6^{ths}. Unit three examines the use of inversions and appropriate voice-leading between chords.

$\frac{6}{3}$ $\frac{7}{5}$ ₃ $\frac{6}{3}$ $\frac{6}{3}$ $\frac{6}{3}$ $\frac{5}{3}$

Phrase model analysis of the melody yields the same result as above, but in m. 3 a Pd function is added so to employ the T-Pd-D-T model. This continues the two-chord per measure harmonic rhythm used above, but substitutes a different phrase model T-Pd-D-T for T-D-T.

Note the soprano pitch G^4 appearing in mm. 2-3 is not part of the triad if we use tonic substitute vi in m. 2, and Pd (ii or IV) in m. 3. This is acceptable because the harmonic rhythm of two chords per measure helps sustain motion towards the cadence. The progression: I-vi-ii-V-I follows the cycle of fifths pattern common in much music.

5 5 5 5 5 2 7 1

T Pd T D D T D T T D D D D T

T Pd D T T* (Pd) D T

Here is the realization of the contextual analysis above. Note Pd in m. 1 is IV, while Pd in m. 3 is the ii chord. Also note that arpeggiated figures sometimes do not contain all chord members. In these instances the soprano voice often contributes the missing chord member.

One other point that will become increasingly important in unit three; with the exception of an anacrusis, avoid repeating the same chord from a weak beat to a strong beat, even when melodic pitches are themselves repeated as occurs between mm. 2-3.

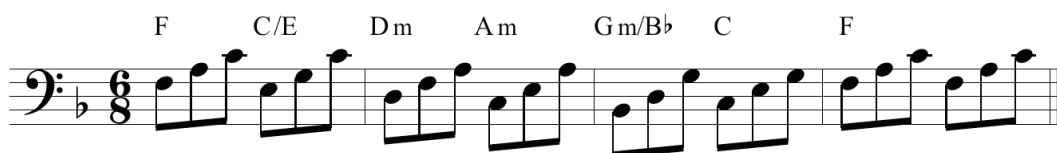
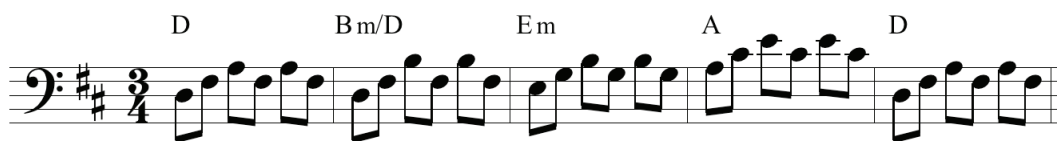
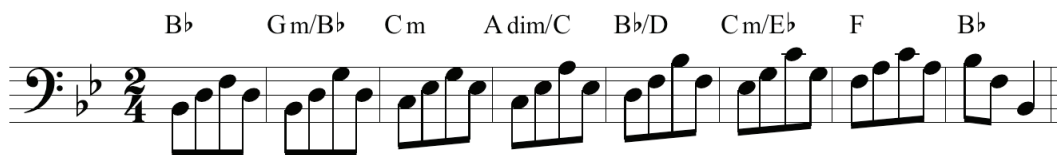
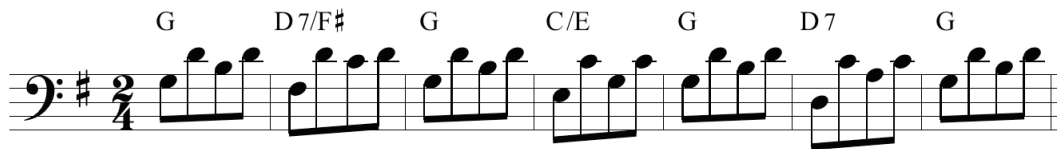
5 5 5 5 5 2 7 1

C: I IV V I^4_2 $vi^6_5_3$ ii V^7 I

Objective: To learn a variety of keyboard accompaniment patterns that can be used to harmonize melodies (2.11).

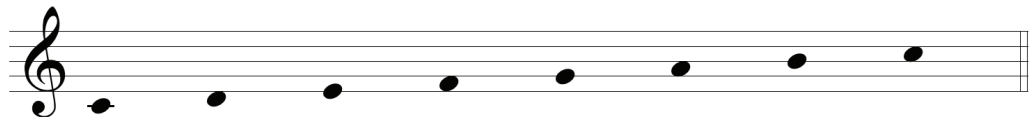
Keyboard Accompaniment Patterns:

The following are common keyboard accompaniment patterns. In most the left hand will span an octave or less, and chord inversions used support effective voice-leading and ease of performance. Analyze these examples with Roman Numerals to see how the harmonic and phrase models are applied.



2.9-2.11 Exercises

Use the Harmonic Model to guide your work:

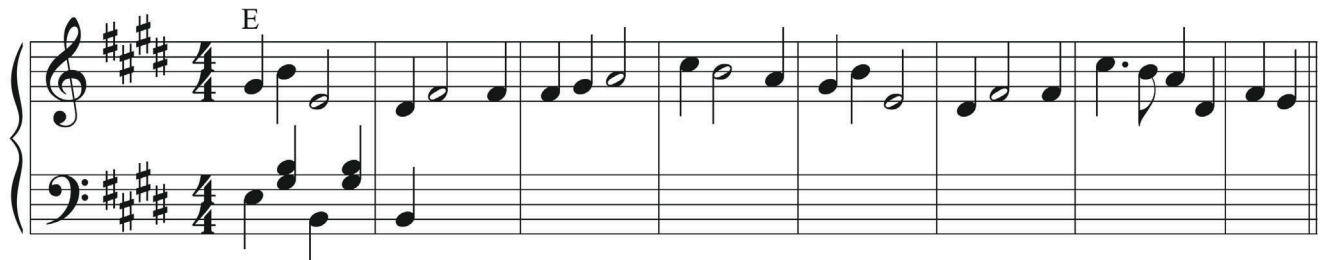


Primary:	I	V	I	IV/V	I/V	IV	V	I
Secondary:	vi	ii/vii°	vi	ii/vii°	iii	ii/vi	vii°	vi
Tertiary:	IV/ii ⁷	V/V	iii		iii	V/V	iii	IV/ii ⁷

Harmonize each pitch of the following examples using primary triads.

1. Harmonize each note with a primary triad as is given by the harmonic model,
2. Create a contextual analysis for each measure,
3. Reduce the number of chords 1-2 chords per measure,
4. Add secondary chords as substitutes if possible,
5. Compose an accompaniment pattern using root position and/or inverted chords,
6. Analyze the result with both chord symbols above the staff and Roman Numerals and figured bass below the grand staff.

Key E:



Key D:



Key Dm:



2.9-2.11 Exercises

Key G:

A musical score for the song "The Rose Tree". It features two staves: a treble staff and a bass staff. The key signature has one sharp (F#) and the time signature is 3/4. The melody is written in the treble staff, starting with a quarter note G4, followed by eighth notes A4-B4, C5-D5, E5-F#5, G5-A5, B5-C6, D6-E6, F#6-G7, and ending with a half note G7. The bass staff contains a single chord, a triad of G2, B1, and D2, indicated by a brace and a colon.

Key Bm:

A musical score for the song 'The Rose Tree'. It features a treble and bass staff. The key signature is two sharps (F# and C#), and the time signature is 4/4. The melody is written in the treble staff, and the bass staff provides a simple accompaniment. The score is divided into five measures. The first measure has a whole note in the treble and a whole note chord in the bass. The second measure has a half note in the treble and a half note in the bass. The third measure has a half note in the treble and a half note in the bass. The fourth measure has a half note in the treble and a half note in the bass. The fifth measure has a whole note in the treble and a whole note in the bass.

Key of A:

A musical score for the song 'The Rose Tree'. It features a treble and bass staff. The treble staff has a key signature of three sharps (F#, C#, G#) and a common time signature (C). The bass staff has a key signature of three sharps (F#, C#, G#) and a 3/8 time signature. The melody is written in the treble staff, and the bass staff contains a simple accompaniment pattern.

G minor:

A musical score for the song 'The Rose Tree'. It features a treble and bass staff. The treble staff has a melody with a slur over the first six notes. The bass staff has a simple accompaniment. The key signature is one flat (B-flat) and the time signature is 3/4.

G Major

A musical score for the song 'The Rose Tree'. It features a treble and bass staff. The treble staff has a key signature of one sharp (F#) and a common time signature (C). The melody is written in a simple, folk-like style with a long note value (likely a half note or whole note) and a series of eighth notes. The bass staff has a key signature of one sharp (F#) and a common time signature (C). The bass line is written in a simple, folk-like style with a long note value (likely a half note or whole note) and a series of eighth notes. The score is presented in a clean, black and white format.

2.9-2.11 Exercises

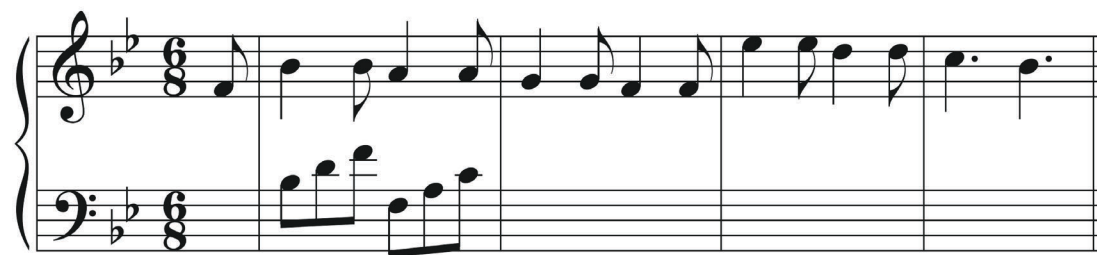
F Major



G major



Key of Bb



Fm:

Written Assignment 5 (2.1-2.6)

1. Identify the following triads listing the root and quality. You can abbreviate Major=Maj., Minor=m, Diminished=dim, and Augmented=Aug.

First staff (Treble clef): *F#m* _____

Second staff (Bass clef): *Bm* _____

2. Write the following triads given the root and quality:

First staff (Treble clef): Aug. m dim M m M dim. m M Aug. M

Second staff (Bass clef): dim. M Aug. m M m dim. M m dim. m

3. Write the Roman Numeral and quality for each triad below given the triad and the key.

Key F:

Key F: *M, I* _____

Key Gm:

Key Gm: *m, i* _____

Key Eb:

Key Eb: *M, I* _____

4. Write the triad given a chord member and quality:

Exercise 4 shows two staves of music. The top staff (treble clef) has six measures with notes and chord symbols: 3 (dim.), 5 (M), R (m), R (Aug.), 3 (m), 5 (M). The bottom staff (bass clef) has six measures with notes and chord symbols: 5 (M), 3 (dim.), R (M), 5 (Aug.), R (M), 3 (dim.).

5. Identify the triads indicating the root and quality on each blank for this excerpt from Bach's *Two Part Invention* #10. There are three cases where the chord is not in Root Position; reorder the pitches to find the root (spell in thirds). Circle the one chord that is not in the key.

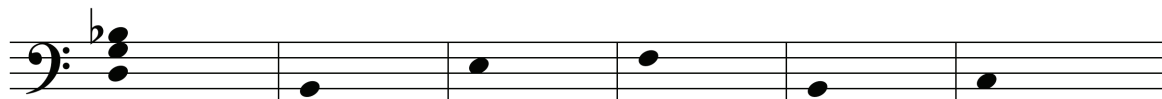
Exercise 5 shows two staves of music from Bach's *Two Part Invention* #10. The first staff (treble clef) has a key signature of one sharp (F#) and a 3/8 time signature. The second staff (bass clef) has a key signature of one sharp (F#). Below each staff are blank lines for identifying the triads. The first staff has a label "GMaj." under the first measure.

1. Spell the triads for each bass note given below.

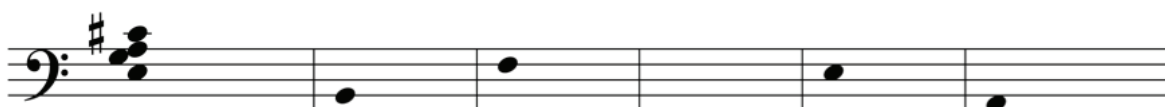
Exercise 1 shows a bass staff with six measures. Below each measure are the triad spellings: m, 6, 4; M, 6, 3; M, 6, 4; m, 6, 3; dim., 6, 3; m, 6, 4.

Written Assignment 6:
2.1-2.8

1. Spell the triads and seventh chords for each bass note given below.



m	M	M	m	dim.	m
6	6	6	6	6	6
4	3	4	3	3	4



<i>Mm7</i>	<i>Mm7</i>	<i>mm7</i>	<i>dm7</i>	<i>MM7</i>	<i>mm7</i>
6	6	6	7	6	6
4	5	4	5	5	5
3	3	2	3	3	3

2. Analyze the triads and seventh chords in the following examples, writing Chord Symbols, Roman Numerals, and Figured Bass for each as shown. Indicate alternate bass for Chord Symbols that appear over inverted chords (e.g. m.2 is G7/B).

C

Key C: I $\begin{smallmatrix} 5 \\ 3 \end{smallmatrix}$

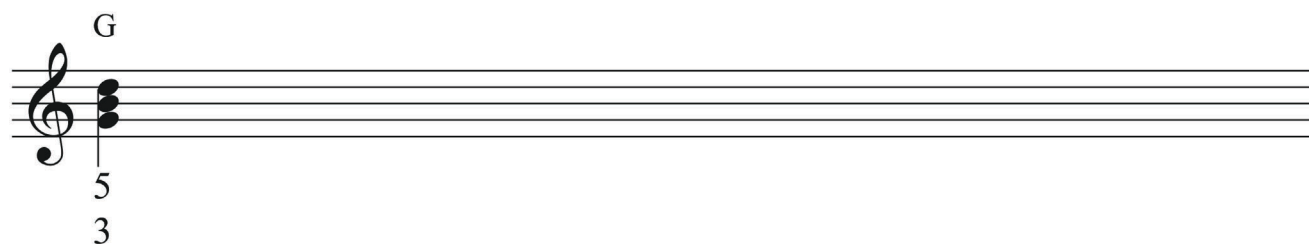
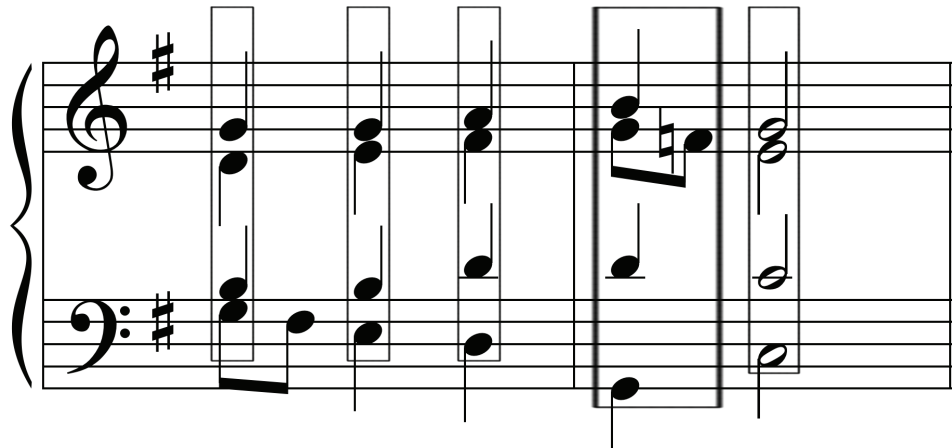
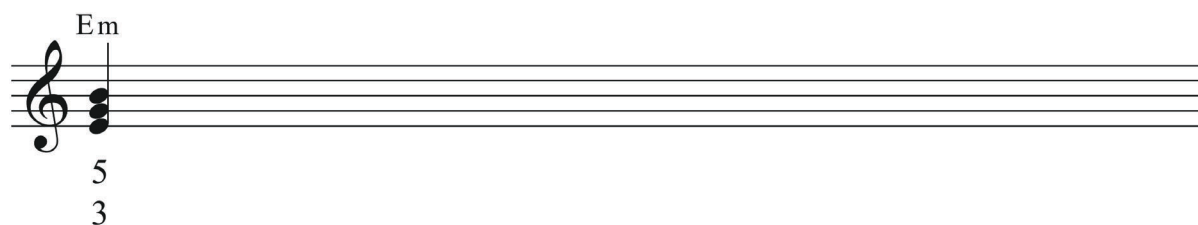
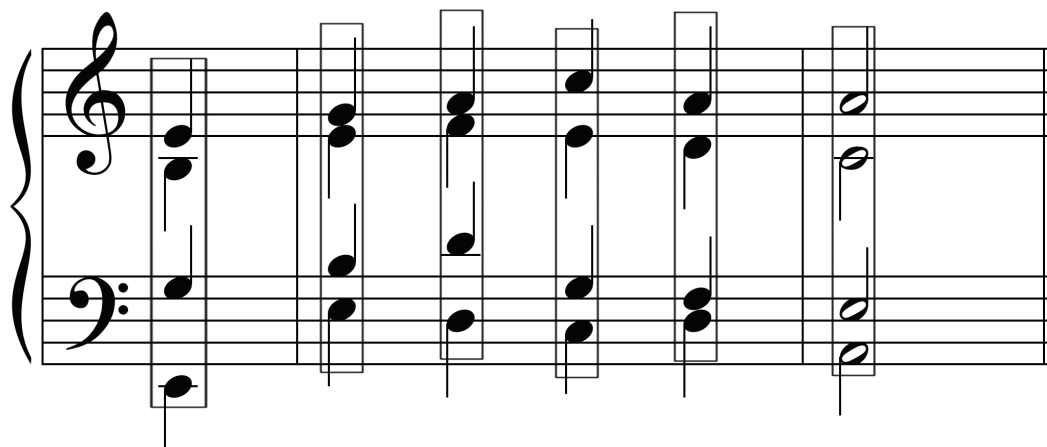
D

Key D: I $\begin{smallmatrix} 5 \\ 3 \end{smallmatrix}$

3. Spell the following seventh chords in root position given a chord symbol:

Am7	Eø7	G7	B ^b Maj7	Cm7	F7	E ^b Maj7	Cdim7

4. Write the chords indicated in the following excerpts onto the staves below, as triads or seventh chords in the proper inversion. Label with Chord Symbols and Figured Bass.



Assignment 7 (2.10-2.11):

Use the Harmonic Model to guide your work:

Primary:	I	V	I	IV/V	I/V	IV	V	I
Secondary:	vi	ii/vii ^o	vi	ii/vii ^o	iii	ii/vi	vii ^o	vi
Tertiary:	IV/ii ⁷	V/V	iii		iii	V/V	iii	IV/ii ⁷

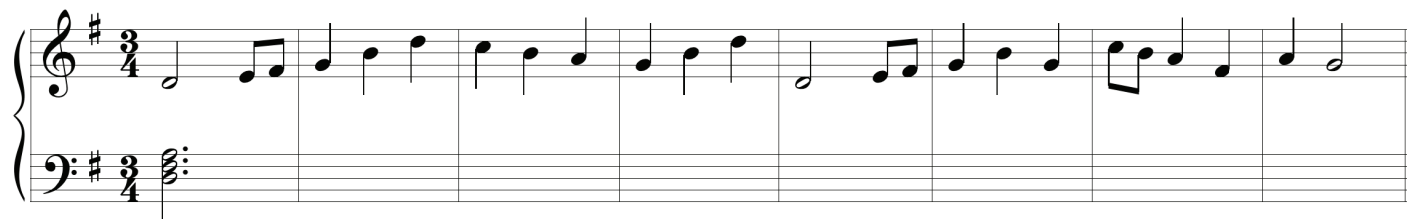
Harmonize each pitch of the following examples using primary triads.

1. Harmonize each note with a primary triad as is given by the Harmonic Model. Indicate this below the grand staff.
2. Create a contextual analysis for each measure (T-D-T etc.). Place this analysis below the roman numerals.
3. Reduce the number of chords 1-2 chords per measure (e.g. T-D-T becomes T). Place block chords in root position in the bottom staff.
4. Add secondary chords as substitutes if possible (I-vi, IV-ii etc.)
5. Compose an accompaniment pattern using root position and/or inverted chords (see 2.12). When inverted chords are used, the bass voice of one chord should connect by step or chordal skip to the next chord (e.g. I-IV bass: 1-3-4; V-I, bass: 5-7-1; I-V, bass: 1-3-5). Put this version on the second staff.
6. Analyze the final version with both chord symbols above the staff and Roman Numerals and figured bass below the grand staff.

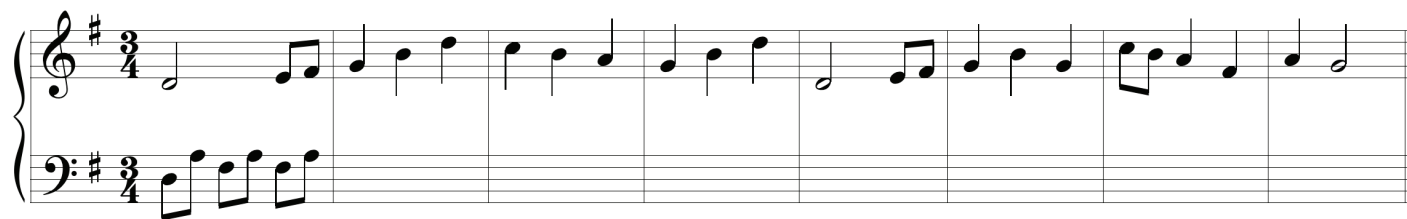
Key E:

Key E (keyboard version):

Key G:



Key G (keyboard version):



Unit Three

- 3.1 The Rule of the Octave
- 3.2 Cadences
- 3.3 Part-Writing Introduction
- 3.4 Connecting Triads in Four Voices
- 3.5 Composing Examples
- 3.6 Resolutions of the Dominant Seventh Chord
- 3.7 Part-Writing Guideline Summary
- 3.8 Non-Chord Tones
- 3.9 Passing Tones and Chordal Sevenths
- 3.10 Uses of the Second Inversion Triad
- Unit Three Assignments

3.1

Objective: to use the Rule of the Octave to analyze and dictate harmonies over a given bass. To compare and contrast the results when phrase, harmonic, and Rule of the Octave are used to determine harmonies (3.1).

Rule of the Octave:

Phrase and harmonic models inform chord choice when harmonizing melodies. The Rule of the Octave (RoO) applies the harmonic model to the bass voice generating harmonies and inversions for each note of the scale.

The Rule of the Octave (RoO), a pedagogical tool used in the conservatories of Naples Italy beginning in the 17th century, spread throughout Europe as an effective way to teach harmony, which is still in use today.

Study of the Rule of the Octave (RoO) accompanied lessons in counterpoint, and keyboard harmonization; the goal of the practice was to train students to create accompaniments from figured bass, and to improvise compositions. Our goals are to learn:

- harmonization of ascending and descending Major and Minor basses,
- the harmonic implication of the bass voice,
- to use Rule of the Octave as a part-writing aid,
- to use the Rule of the Octave as an aid in harmonic analysis,
- to generate harmonizations of unfigured bass lines.

Examine Roman numerals for the ascending form below noting how they correspond to the harmonic model. Here are points to consider:

- The first three scale degrees is one of the most common T-D-T expansions,
- Root position chords generate T-D-T phrase motion (Bass 1-5-1),
- Predominant ii, and IV appear in inverted form only,

The Rule of the Octave (RoO) specifies harmonies and inversions that can be used for each note of the scale. With this information one can predict harmonizations by examining the bass voice alone. Let's see how this works with some samples from the literature.

Rule of the Octave:

F: I V⁴₃ I³ ii⁵₃ V IV³ V⁵₃ I

Bach: Was frag ich nach der Welt

3.1

Bass Scale degrees:	Predicted harmonization	Actual Harmonization
1-6-3-4-1-3-4-5-1	I-IV6-I6-ii6-I-I6-ii6-V-I	V-vi-(IV)-iii-IV-(ii)-I-I-ii-V-I
Explanation: Chords related by the interval of a third are substituted (I-vi, I-iii, IV-ii). iii substitutes for V, or I when 7-6 appears in the soprano.		

Beethoven: Op. 10 no. 1, mm. 55-63

E_b I V $\begin{smallmatrix} 6 \\ 4 \\ 3 \end{smallmatrix}$ $\begin{smallmatrix} 6 \\ 3 \end{smallmatrix}$ $\begin{smallmatrix} 6 \\ 5 \\ 3 \end{smallmatrix}$ I

Bass Scale degrees:	Predicted harmonization	Actual Harmonization
1-2-7-1	I-V 4/3-V 6/5-I	I-V 4/3-V 6/5-I
Explanation: The harmonization follows Rule of the Octave. Note Bb^3 pedal tone in the tenor voice, and suspensions Eb^5 , and Ab^5 in mm. 3, 7.		

Clementi: Op 36. no. 3

G: V $\begin{smallmatrix} 7 \end{smallmatrix}$ IV $\begin{smallmatrix} 6 \\ 3 \end{smallmatrix}$ V $\begin{smallmatrix} 6 \\ 3 \end{smallmatrix}$ I V $\begin{smallmatrix} 6 \\ 4 \\ 3 \end{smallmatrix}$ I $\begin{smallmatrix} 6 \\ 3 \end{smallmatrix}$ V $\begin{smallmatrix} 6 \\ 3 \\ 7 \end{smallmatrix}$ I

Bass Scale degrees:	Predicted harmonization	Actual Harmonization
5-6-7-1-2-3-5-1	V-IV6-V6/5-I-V4/3-I6-V-I	V-IV6-V6/5-I-V4/3-I6-V-I
Explanation: The harmonization follows Rule of the Octave. "Stack" the pitches of each group of sixteenths to determine which pitches fit the harmony.		

3.1

Handel: Giulio Cesare Overture

Violin I

Violin II

Viola

Tutti Bassi

A: I (I) V IV³ I³ IV vii^o I V I vii^o I³

A: IV V³ vi vii^o I IV³ V³ I V³ vi V³

Bass Scale degrees:	Predicted harmonization	Actual Harmonization
First System		
1-1-5-6-3-4-2-1-5-1-2-3-4	I-I-V-IV6-I6-ii6-V4/3-I-V-I-V4/3-I6-ii6	I-V-IV6-I6-IV-vii ^o 6-I-V-I-vii ^o 6-I6-IV
Explanation: vii ^o 6 is substituted for V4/3 throughout the passage. Root position IV is a better choice for the cadence at the end of the phrase.		
Second System (double bar)		
7-5-6-7-1-5-6-7-1-1-5-1-7-6-5-4-2	V6—IV6-V6-I-V IV6-V6-I- V-I-V6-IV6-V	V6-vi-vii ^o -I—IV6-V6-I—V-V6-vi-V
Explanation: Here vi is used as a passing chord (a tone or chord that connects by step to another chord), but for the most part the example follows RoO. The phrase ends inconclusively name three factors why.		

3.1

Compare and contrast results generated by the harmonic and phrase models with the Rule of the Octave using chorales studied earlier in this unit.

Bach: Was frag ich nach der Welt?

HM: I/V I V I I/V I/V IV
PM: T/D T D T T/D T/D Pd

RoO: V⁶ I V⁶ I⁶ I ii⁶
PM: D T D T T Pd

1. Bach: Was frag ich nach der Welt? Key of D Major, 4/4 meter.

Harmonic Model:	Phrase Model:	Rule of the Octave:
Soprano: Harmonies given for each pitch.		
I/V-I-V-I-I/V-I/V-IV	T/D-T-D-T-T/D-T/D-Pd (D-T-----Pd)	V-I6-V-I-V-V-IV6
Bass: Harmonies given for each pitch.		
V-I-V-I-I-IV	D-T-D-T-T-Pd (D-T-----Pd)	V6/5-I-V4/3-I6-I-ii6
Explanation: Each of the models dictate the same functional progressions. The bass voice clarifies the harmony dictating when 5 is harmonized by either T or D. Cadence is on IV rather than ii ⁶ as is dictated by RoO.		

Bach: Was Gott tut, das ist wohlgetan

2. Bach: Was Gott tut, das it wohlgetan. Key of G Major, 4/4 meter.

Harmonic Model:	Phrase Model:	Rule of the Octave:
Soprano: Harmonies given for each pitch.		
I/V-V-I-IV-V-I	T/D-D-T-Pd-D-T (D-----T-Pd-D-T)	I-V-I-IV-V-I
Bass: Harmonies given for each pitch.		
I/V-IV-V-I-IV-V-I	T/D-Pd-D-T-Pd-D-T	V-IV6-V6-I-ii6-V-I
Explanation:		

1. The opening soprano figure can be harmonized I-V-I or V-V7-I.
2. 4 on beat four descending to 2 is best harmonized by Pd making the progression Pd-D (beat four to beat one).
3. 2-1 at the end of the excerpt should be V-I
4. Notice RoO harmonies and inversions are followed with the exception of beat four, where IV is used instead of ii6.



3. Bach: Nun lob mein' Seel' den Herren. Key of C, 3/4 meter.

Harmonic Model:	Phrase Model:	Rule of the Octave:
Soprano: Harmonies given for each pitch.		
I-I-V-IV-I/V-I-V-I	T-T-D-Pd-T/D-T-D-T (T-----T)	I-I-V-ii6-I/V-I-V-I
Bass: Harmonies given for each pitch.		
I-IV-I-IV-I-I-IV-V-I	T-Pd-T-Pd-T-T-Pd-D-T (T-----T)	I-IV6-I6-ii6-I-I6-ii6-V-I
Explanation:		
1. The example begins with a weak-strong 1-1, which could be harmonized: I-I, IV-I, or I-vi as Bach does; vi substituting for I. 2. M. 1 beat three to m. 2 beat one offers a few choices. Notice how the models disagree based on the assessment of soprano and bass voices. Bach uses iii here which could go to either vi, or IV as this example does. Soprano 7-6 makes iii a good choice. 3. M. 2 beat three to m. 3 beat one should be V-I based on the soprano. Bach violates the weak to strong rule by using I-I. 4. M. 3 beat two soprano could be harmonized by V, but is harmonized by ii6. Pd ii6 can be used in cases where models dictate T-D-T, or D-T. Here 2-3 becomes: ii6-V-I; Pd-D-T. When possible, Pd is a useful substitute for I when approaching a cadence.		

3.2

Objective: Students will identify and construct common cadences with proper voiceleading (3.2).

Cadence:

Definition: The conclusion or punctuation point in a musical phrase; the formula upon which such a conclusion is based.

Cadences affirm or establish the tonality of a passage. Memorize both the scale degrees and accompanying harmonies for each cadence formula. Cadences employ two chords but may use Pd-D-T, or a cadential 6/4 chord. The final chord at a cadence is generally in root position.

Cadence Type	Melodic Motion	Harmonic Motion	Function
Perfect Authentic Cadence (PAC). (also called authentic, final, full, or closed)	Soprano: 7-1, or 2-1.	Root position V-I Bass: 5-1.	PAC's are reserved for the end of a phrase, a period, or the end of a piece. They are the most conclusive cadence.
Imperfect Authentic Cadence (IAC).	Soprano: 2-3, 4-3, 5-5. Tones of D-T different from PAC.	V-I, V-i. Most often in root position, but V may be inverted.	IAC's often appear internally in phrase groups. When scale degrees other than the tonic appear in the soprano voice, the cadence is less conclusive than a PAC.
Half Cadence (HC) Phrygian Half Cadence	2, or 5 are common at the chord of resolution.	Any chord leading to the V of the key (x-V). Phrygian half cadence uses iv ⁶ -V in a minor key. Half-step (Bass: b6-5) gives the cadence its name.	HC's appear at the ends of phrases where continuation is implied. They are inconclusive with respect to the home key.
Plagal Cadence (Plagal)	No specific requirement. Soprano is often 1.	IV-I; iv-i. Plagal cadences may employ root position or inverted chords.	May embellish the final arrival of the tonic. Sometimes referred to as the "Amen" cadence. Plagal cadences are less conclusive than PAC, or IAC.
Deceptive Cadence (DEC): sometimes called Interrupted.	Tones of V, V7 resolve as if going to I except bass 5-6.	V-vi; V-VI. Deceptive resolution of V-vi usually employs root position chords (Bass: 5-6; 5-b6).	The unexpected resolution from V to vi/VI gives the cadence its name. DEC often precede IAC, or PAC interrupting the arrival of the Tonic chord.

Perfect Authentic Cadence (V-I/I, V7-I/i):

Soprano (7-1, 2-1) and bass (5-1). V7 can be used if chordal 7th is in an inner voice.

Major:



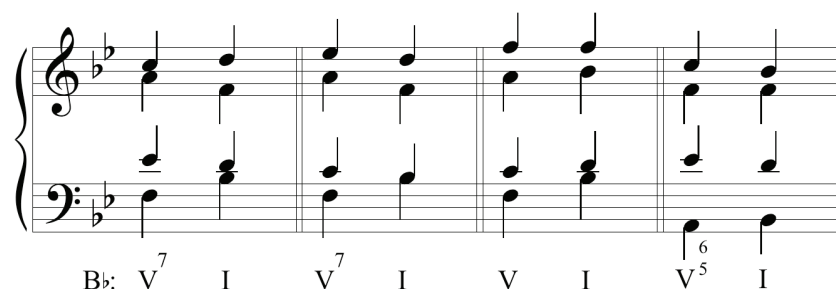
Minor:



Imperfect Authentic Cadence (V-I/i; V7-I/i):

IAC are any authentic cadence (V-I/i) that does not follow the PAC formula. The example below shows some of the many possibilities.

When the leading tone (7) is in an outer voice (soprano, or bass) it must always be resolved to the tonic (1). When it occurs in an inner voice (ex: 1, 2) it can move to 5.



Half Cadence (x-V):

The final chord (V) is in root position and may be preceded by any chord. The following shows some of the possibilities for a half cadence.

In phrase periods, half cadences often punctuate the first phrase while an authentic cadence punctuates the second.

There are few things to note about voice-leading. Chords related by an interval of a fifth; keep the common tone in the same voice (ex. 2, 3,4). Chords are related by the interval of a second, move voices in the direction opposite the Bass (ex. 1, 5). Example three uses a chord outside the key of A to bring about a half cadence. The chord in question is the “dominant of the dominant” and is labeled V/V. This chord functions as a temporary dominant and is often used in phrases that move to a new key.

1. 2. 3. 4. 5.

IV V ii⁶ V V/V V I V vi V

Deceptive Cadence (V-vi; V-VI):

In the deceptive cadence the dominant (V) moves to vi instead of I. The name of the deceptive cadence infers that when V-vi the listener is deceived by the vi substituted for I. The deceptive cadence is also called interrupted cadence since it is often used as a harmonic detour interrupting the final authentic cadence. See the example from Handel later in this section (#11).

G: V⁷ vi

Examples:

Examine the cadences in each example below. In some cases the entire phrase is given, in others only the chords preceding the cadence are shown. When complete phrases are given, check the harmonization to see if it follows the harmonic model, and apply the phrase model to ascertain chord functions and expansions (e.g. T-D-T etc.).

1. Watts: O God, Our Help in Ages Past:

Hymn collections are a wonderful source for the study of diatonic harmony. Written primarily for amateur performers, they present clear, unadorned harmonic progressions.

The example below shows a half cadence, perfect authentic cadence, and ends with a plagal cadence. The first phrase concludes with a half cadence. Here the dominant, G, is preceded by its own dominant, D. The addition of F#, the leading tone of G, intensifies the motion to G. The alternate analysis, given below, shows how chords preceding the cadence function in the key of G, though ultimately the cadence itself is a half cadence leading back to the home key of C.

The PAC that concludes the second phrase is part of a T-Pd-D-T phrase motion, and the plagal cadence that concludes the hymn is a standard ending signifying the conclusion of the work.

Watts: O God, Our Help in Ages Past

HC ⑦ PAC Plagal

C: I I IV I vi IV⁷ V I I vi iii vi V/V V ii I IV V I IV I

G: ii⁶ V I

2. Simpson: Living in Glory

The end of this hymn features a perfect authentic cadence using a Mm7 seventh chord preceded by a tonic chord in second inversion. The Mm7 resolves to a tonic chord without a fifth; following scale degree resolutions discussed earlier (2-1, 4-3, 7-1). The tonic chord in second inversion preceding the penultimate dominant chord is a common cadential feature, note how scale degree 5 is in the bass for both T and D.

Simpson: Living in Glory

PAC

Bb: V I⁷ V I⁶ V I⁷ I

3. Grimes: Consider Him

This example features two imperfect authentic cadences, a half cadence, and a plagal cadence. The first IAC features a motion from a dominant chord in second inversion to a tonic chord with 3 in the soprano voice. The motion from the leading tone in the soprano, 7-1-2-3 is accompanied by 5-6-7-1 in the tenor voice generating an interval sequence of thirds.

The half cadence at the end of the second phrase uses a voice-exchange between the soprano and tenor. Intervals for a voice-exchange are always 6, 8, 3; or 3, 8, 6. Voice exchange is a common technique that will be part of our discussions for some time.

The IAC that concludes the verse has 5-1 in the bass voice, but keeps the common tone, 5 in the soprano. The plagal cadence at the end of the hymn concludes the work.

Grimes: Consider Him

Ab: V^4 ii vii $^{\circ 3}$ I ii V V I IV I

4. Bach: Dir, dir, Jehova, will ich singen

Bach's 371 chorale harmonizations are an indispensable resource for study of diatonic harmony. Most of the rules for part-writing in four parts were derived from Bach's work.

This chorale features a PAC and HC. The PAC features 2-1 in the soprano and 5-1 in the bass; the chordal seventh of the dominant appears in the tenor voice, while the alto voice features a 4-3 suspension. Note that some pitches are included in the chords while others are not; these are non-chord tones and will be discussed in detail later. The most unusual feature of the half cadence is that the third inversion V/V preceding the dominant does not resolve correctly (Bb should resolve to A).

Bach: Dir, dir, Jehova, will ich singen

Bb: I^6 V^3 I IV^6 ii^6 I vi IV V^4_3 I V^6 I V^2 I^6 $vii^{\circ 6}$ I^6 V/V^2 V

5. Bach: Weltlich' Her' und zeitlich Gut

The following example shows the first and last phrase of the chorale. A plagal cadence punctuates the end of the first phrase.

This chorale uses suspensions, all occurring in the alto. A suspension is a non-chord tone that is first prepared as a chord tone, suspended as a dissonance, and then resolved by step to a chord tone. These are indicated in the figured bass as: 9-8, 4-3, and 5-6.

Phrase analysis of the second phrase yields: D-T-D/D-D-D/D-D; Pd-D-T (secondary dominants are labeled D/D). The addition of $F\sharp$ in the alto, and bass voices creates a dominant chord in the key of G. The phrase analysis shows mostly D-D/D, which implies expansion or prolongation of the Dominant, G. The perfect authentic cadence that concludes the passage uses 7-1 in the soprano, and 5-1 in the bass.

Bach: Weltlich' Ehr' und zeitlich Gut Plagal PAC

C: I $\frac{6}{5}$ IV $\frac{9-8}{5}$ ii $\frac{6}{4}$ V $\frac{4}{2}$ I $\frac{6}{4}$ IV I V I $\frac{5-6}{5}$ vii^o/V V V/V V $\frac{9-8}{5}$ ii V I

D T D/D D D/D D D-----D

6. Bach: Als vierzig Tag' nach Ostern

The end of the first phrase features a phrygian half cadence (iv⁶-V). This cadence is more common in minor because the sixth scale degree of minor is a half step above the fifth. Note here the use of the ascending melodic minor producing major chords on IV and V (Phrase: T-Pd-D-T) in m. 3. The phrygian half cadence is embellished by a vii^o chord appearing on beat three of m. 4.

Bach: Als vierzig Tag' nach Ostern HC

Em: i $\frac{6}{5}$ V⁶ $\frac{6}{\#}$ i IV⁶ V⁶ i v⁶ iv⁶ (vii)^o $\frac{4}{2}$ iv⁶ V

6. Beethoven: Op. 14, no. 2, Piano Sonata

In some musical styles an octave leap in the bass is used to signify the arrival of a cadence as it does here. The last three measures use T-Pd-(T)-D-T. Observe again the tonic chord in second inversion precedes the dominant. Are the chromatic pitches in the first four measures of the excerpt part of a chord? How do they function?

Beethoven: Op. 14, no. 2, Piano Sonata PAC

G: I $\frac{6}{4}$ IV⁶ $\frac{6}{4}$ V⁶ I ii⁶ I⁶ V I

7. Schubert: Op. 9, no. 15, Waltz

In the measure that precedes the PAC, pitches 1, 3 occur on the last eighth-note embellish the cadence—these pitches embellish the dominant chord.

There are also chromatically altered non-chord tones in this example; can you locate them? How do they function?

Schubert: Op. 9, #15, Waltz

Key: D $\flat$: V ————— I ————— V ————— I

8. Schubert: Op. 9, no. 3, Waltz

Phrase analysis of this excerpt yields: T-Pd-Pd-D-D-(T)-D-T; note the use of the second inversion tonic chord preceding the cadence. As we have seen in previous examples the use of the tonic chord in this manner is common; so much so, that when the second inversion tonic appears before a cadence it is called a cadential 6/4 chord.

Schubert: Op 9, #3, Waltz

Key: A $\flat$: I IV ii⁶ V V⁷ I⁶ V⁷ I

9. Beethoven: Op. 2, no. 2, Piano Sonata

In the following example from Beethoven the RH part features chords of four or more voices, while the LH employs a scale figure that outlines: D-T-Pd-D/D-(T)-D-T. Note the use of an F# dd7 chord that precedes the cadential 6/4. The dotted slur connecting G²-C³ shows how that pitch functions as part of the PAC.

Beethoven: Op. 2, no. 2, Piano Sonata

Key: C: V ————— I ————— ii⁶ ————— vii⁷/V ————— I⁶ ————— V ————— I

10. Chopin: Mazurka Op. 30, no. 2, in B minor

The excerpt from a Chopin Mazurka ends with an IAC. Phrase model yields:

T-D-T-d-Pd-Pd-Pd-D-T. VI, and III are predominant chords containing members of the tonic labeled Pd. The IAC uses 4-3 in the soprano voice.

Chopin: Mazurka Op. 30, no. 2, in B minor

Allegretto

i — V⁷ — i — v — VI — III — ii^{o6} — V⁷ — i

11. Handel: Concerto Grosso no. 12 in B minor

The excerpt below contains a deceptive cadence preceding the final PAC. Note that the melodic voice employs the minor pentachord (5-4-3-2-1) at both cadences. In doing so, Handel creates the perception that the deceptive cadence is a momentary detour interrupting the inevitable arrival of the tonic. The composer also uses an octave leap in the bass voice to signify the cadential arrival. In the first instance 5 (F#) leads to 6 (m. 3, beats 2-3), and in the last it leads to 1 (m. 4 beats 3-4). At the PAC (mm. 4-5) the minor penta-chord appears an octave lower than in m. 3, that and the Adagio emphasize the end of the phrase.

Handel: Concerto Grosso no. 12 in B minor

Dec. Adagio PAC

Bm: V⁶ — i — V⁶ — i — V⁶ — viio⁶ — i — V⁷ — VI⁷ — iv — i — ii^{o6} — V⁶ — i

Cadences and Meter:

The accented beats of the meter to help articulate cadences; generating a hierarchy whereby cadences occurring on strong beats are more conclusive than those on relatively strong, or weak beats.

Observe this in the previous example from Handel and in the following example from the last movement of Mozart's Piano Sonata K. 333. Here, half cadences appear on beat 2 (mm. 4, 12—notice how the cadential 6/4 delays the cadence in both cases) while perfect authentic cadences in mm. 8, 16 appear on beat 1.

Mozart: Piano Sonata K. 333 (III) mm. 1-16.

Mozart: K. 333, mvt III (mm. 1-16)

HC PAC

p

B♭: I ⁶ vi ii ⁶ V ⁴ 2 I V ⁶ I ii ⁶ V ⁶⁻⁵ 4-3 I ⁶ vi ii ⁶ V ⁴ 2 I ii ⁶ V ⁶⁻⁵ 4-3 I

9 HC PAC

f

B♭: I vi ii ⁶ V ⁷ I V ⁶ I ii ⁶ V ⁶⁻⁵ 4-3 I vi ii ⁶ V ⁷ I ii ⁶ V ⁶⁻⁵ 4-3 I

3.3

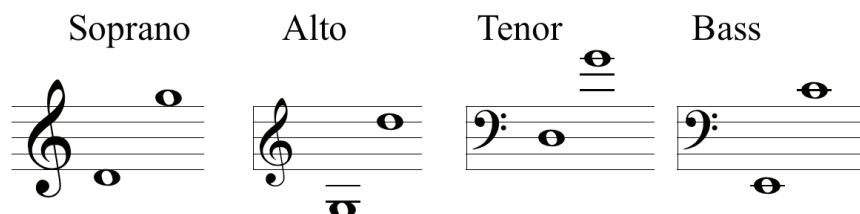
Objective: Students will use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7); and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Objectives to:

- understand chord to chord voice-leading,
- understand the resolution of tendency tones, and use of non-chord tones,
- effectively harmonize melodies, and melodic basses in four parts (SATB),
- learn part-writing rules, and their musical implication,
- identify SATB (separate voices) in varied musical styles (e.g. solo + piano, quartet, orchestra etc.).

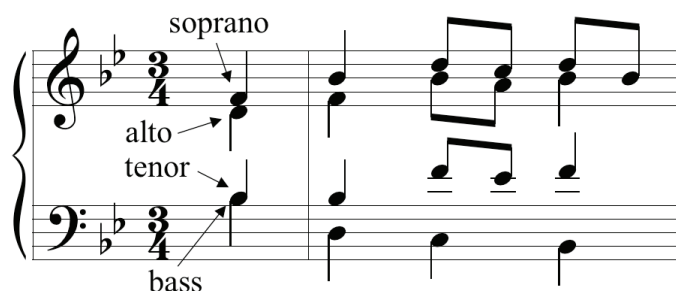
Voice Ranges:

Ranges for SATB are given. In practice the tessitura for each voice is in the middle of its range except for the bass, which typically uses a wider range, and more leaping than in other voices. Note S, A, T all use pitches D and G members of the dominant of C.



Grand Staff:

Parts are written two voices to a stave on the grand staff. Stems go up for the top voice on each staff (soprano, tenor), while stems for the bottom voices (alto, bass) go down. Note the unison notated as a single note head with stems indicating tenor and bass on the pickup beat.



When we harmonized melodies earlier, we used keyboard accompaniment patterns, which “fit” the performer’s hand. Four part writing is a vocal style and chords may be voiced a variety of ways depending the desired sound and voice-leading constraints.

Chord Voicing; Guideline:

Distribute the notes of a chord on the staff so that there is an octave or less between adjacent Soprano, Alto, and Tenor voices. The interval between Bass and Tenor may exceed an octave.

- Closed voicing: an octave or less between the soprano and tenor.
- Open voicing: an octave or less between adjacent voices, and more than an octave between soprano and tenor.

Examine the intervals between soprano, alto, and tenor below. The interval between the bass and tenor often exceeds an octave, but generally does not exceed two octaves.

The image shows two musical staves illustrating chord voicing for a G major chord (G-B-D-F#). The first staff, labeled 'Closed Voicing', shows three voicings: 1) Soprano: G4, Alto: B4, Tenor: D4, Bass: G3 (intervals: 3, 4, 3); 2) Soprano: B4, Alto: D4, Tenor: F#4, Bass: G3 (intervals: 3, 3, 4); 3) Soprano: D5, Alto: F#4, Tenor: B4, Bass: G3 (intervals: 3, 3, 4). The second staff, labeled 'Open Voicing', shows three voicings: 1) Soprano: G4, Alto: B4, Tenor: D5, Bass: G3 (intervals: 6, 5, 8); 2) Soprano: B4, Alto: D5, Tenor: F#5, Bass: G3 (intervals: 6, 5, 8); 3) Soprano: D5, Alto: F#5, Tenor: B5, Bass: G3 (intervals: 6, 5, 8). Brackets indicate the intervals between adjacent voices.

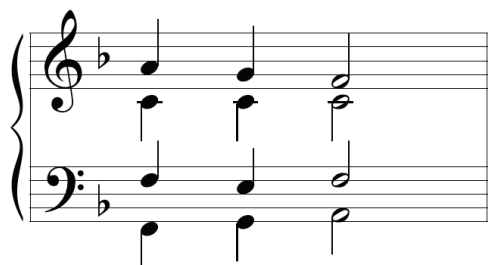
If the interval between adjacent voices exceeds an octave, whenever possible re-voice the chord by “switching” chord members as in the two examples below (soprano-alto; soprano-tenor).

The image shows a musical staff with two systems of a G major chord (G-B-D-F#). In the first system, the Soprano voice has G4 and the Alto voice has B4. In the second system, the Soprano voice has B4 and the Alto voice has G4. Arrows indicate the 'switching' of the G and B notes between the two systems. The Tenor and Bass voices remain stationary, with Tenor on D4 and Bass on G3.

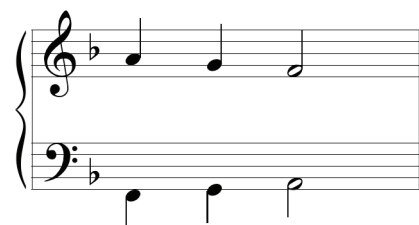
Three types of Motion (contrary, parallel/similar, oblique); Guideline:

When writing a series of chords follow guidelines below. Of the three types of motion contrary is preferred to parallel/similar, or oblique in most cases.

The following example demonstrates each type of motion between the different voices.

**Contrary motion:**

Voices move in opposite directions (ascending or descending); preferred in most cases; in particular between outer voices (soprano and bass).

**Oblique motion:**

One voice moves against a stationary voice. Note this motion is used when chords share common tones. Here Oblique motion appears between the Soprano and alto voices as the repetition of the common tone (C⁴) a member of the tonic and dominant in the key of F.

**Similar motion:**

When voices move in the same direction, by the same interval (parallel); or same direction, by a different interval (similar). The example shows similar motion—the steps are of different size. Avoid parallel motion when approaching or leaving perfect intervals.

**Melodic, note-to-note motion; Guideline:**

Conjunct (stepwise) motion is preferred for note-to-note connections in one voice. In the example, conjunct motion is used throughout except in cases where a voice leaps the interval of a third (from one chord member to another—consonant skip, cs), or the voice leaps the interval of a fourth when moving from one chord root to another. Does Bach use oblique motion anywhere in this example; where does it occur? Examine: S-A, S-T, S-B, A-T, A-B, T-B.

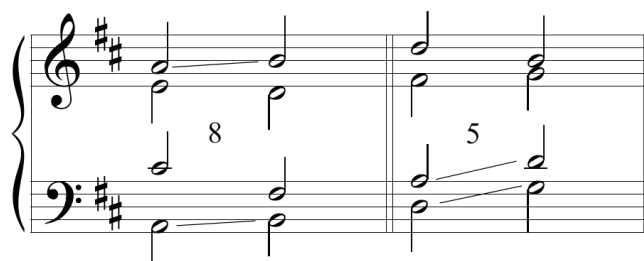
Bach: Weltlich' Ehr' und zeitlich Gut



Parallel Perfect Intervals; Guideline:

Avoid using parallel perfect octaves, fifths, and unisons. Parallel perfect intervals negate voice independence because parallel octave, unison or fifth sounds more like one voice instead of two (*ref.* Octave Equivalence).

Parallel perfect intervals occur when a perfect interval appears between pitches in the same voices. As a general rule approach and leave perfect intervals using contrary motion, or try switching chord members to fix the issue.



Doubling; Guideline:

Double the bass voice except when it is a tendency or chromatically altered tone; double the root of the triad as an alternate. Tendency tones are leading tone, chordal seventh, or a chromatically altered tone. Analyze the example that follows:

- Analyze each chords with a Roman numeral and figured bass,
- Circle doubled pitches for each chord,
- In cases where the bass is not doubled, determine the doubling,
- What happens when a chord contains a chordal 7th (m. 2 bt. 3, 4; m. 3 bt. 2)?
- Notice that octaves are approached and left by contrary motion. Are there any chords that are incomplete? Which note is missing?
- Which chord uses a tendency tone in the bass voice?



B $\flat$: — — — — — — — — — —

Voice Crossing; Guideline:

In four-part writing, avoid crossing one voice over another by keeping voices in their appropriate ranges, and avoid leaps to a pitch formerly occupied by another voice.

Bach: Dir, dir Jehova, will ich singen

Overlaps:

S/A pickup D 4 -F 4 (F)

S/A m. 1, bt. 1; F 4 -B $\flat^4$ (B $\flat$)

S/A m. 1-2, bt. 3-1; D 5 -B $\flat^4$ (B $\flat$)

S/A m. 6, bt. 3; D 5 -B $\flat^4$ (B $\flat$)

Bach: Dir, dir, Jehova, will ich singen

B $\flat$: I — $\overset{6}{\underset{4}{V}}$ I IV $\overset{6}{\underset{6}{ii}}$ I vi IV $\overset{7}{\underset{3}{V^4}}$ I $\overset{6}{\underset{5}{V}}$ I $\overset{6}{\underset{2}{V}}$ I 6 viio 6 I 6 $\overset{6}{\underset{4}{V/V}}$ $\overset{4}{\underset{2}{V}}$

In the example below a voice cross occurs between alto and soprano in m. 1 bt. 3 to m. 2 bt. 1; S/A F $^{\sharp 4}$ -E 4 . The crossing could have been avoided had the common tone B 3 appeared on m. 2, bt. 1 (tenor). F $^{\sharp 4}$ could then have been used on m. 2, bt. 2. Note how the suggested change also follows doubling guidelines.

Bach: Als vierzig Tag' nach Ostern

Em: i ⁶ V ⁶ i IV ⁵ V ⁶ i v ⁶ iv ⁶ (vii) ² iv ⁶ V

On m.1, bt. 3 notice how the tenor crosses over the bass voice. Bach's choice to cross the voices here helps to emphasize G³ in the tenor on the next chord. An F# in the bass would not be possible; tendency tones in an outer voice (S, B) must resolve.

Bach: Was Gott tut, das ist wohlgetan

G: V IV ³ vii ⁷ I IV V I

3.4

Objective: Students will use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7), and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Connecting Triads; Guideline:

- Keep common tones in the same voice, and move other voices by step,
- Approach and leave perfect intervals using contrary motion,
- Leaps of a fourth or greater are followed by a step in the opposite direction,
- Conjunct motion is preferred.

Triads related by an interval of a Fifth:

Root motion by ascending fourth/descending fifth is the most common harmonic motion in tonal music.

Chords related by an ascending fourth, or descending fifth:

Major: I-IV-vii^o-iii-vi-ii-V-I (shown)

Minor: i-iv-VII-III-VI-ii^o-V-I

(common tone in alto voice).

The musical notation shows a sequence of triads in G major. The treble clef contains the upper voices, and the bass clef contains the lower voices. The triads are: G: I (G, B, D), IV (C, E, G), vii^o (F#, A, C), iii (B, D, F), vi (E, G, B), ii (D, F, A), V (G, B, D), and I (G, B, D). The bass line shows the root motion: G, C, F#, B, E, D, G, G.

G: I IV vii^o iii vi ii V I

When connecting triads related by the interval of a fifth:

- Keep common tones in the same voice,
- Move other voices by step in contrary motion to the bass when possible,
- Resolve tendency tones in outer voices.

Triads related by an interval of a Third:

Third related chords share two common tones.

When connecting triads related by the interval of a third:

- Keep common tones in the same voice,
- Move the other voices in contrary motion to the bass when possible.

Watts: O God, Our Help in Ages Past

C: I I IV I vi IV⁷ V I I vi iii vi⁶ V/V V
G: ii⁶ V I

Bach: Nun lob mein' Seel' den Herren

C: I vi IV⁶ iii IV⁶ ii³ I⁶ ii⁵ V I

Bach: Als vierzig Tag' nach Ostern

Em: i⁶ V⁶ i IV⁵ V⁶ i v⁶ iv⁶ (vii)⁴ iv⁶ V

Bach: Dir, dir, Jehova, will ich singen

Bb: I⁶ V⁴ I IV⁶ ii⁶ I vi IV V⁷ I V⁶ I V⁴ I⁶ vii⁶ I⁶ V/V⁴ V

Bach: Weltlich' Ehr' und zeitlich Gut

C: I⁶ IV⁹⁻⁸ ii⁶ V⁴ I⁶ IV⁹⁻⁸ I⁴⁻³ V I vii/V⁵⁻⁶ V V/V⁶ V⁹⁻⁸ ii⁴⁻³ V I

Objective: Students will harmonize melodies and basses applying phrase and harmonic models, and the Rule of the Octave (2.10, 3.1); use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7); and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Harmonization starting from a Melody:

We will start with a melody from one of Bach's chorales (Was Gott tut, das ist Wohlgetan). Use the harmonic model, follow the steps outlined below, and compare results to Bach's example.

Primary:	I	V	I	IV/V	I/V	IV	V	I
Secondary:	vi	ii/vii°	vi	ii/vii°	iii	ii/vi	vii°	vi
Tertiary:	IV/ii ⁷	Sec.	iii		iii	V/V	iii	IV/ii ⁷

1. Create a root position harmonization of the example using the Harmonic model.

G: I V I IV V I

2. Add inversions to make the bass more melodic. Here, first inversion chords create contrary motion between the bass and soprano. The new bass fills in the space between G²-G³ with an arpeggiation.

G: I ⁶V ⁵I IV ⁶V I

3. Complete the example by adding inner voices. This realization follows part-writing guidelines. Note the leading tone in an inner voice (alto) m. 2, bt. 2 resolves to the fifth of the next chord.

G: I ⁶ V ⁵ I IV ⁶ V I

4. Compare to Bach's:

Bach: Was Gott tut, das ist wohlgetan

G: V IV ⁶ ⁷ vii° I IV V ⁴⁻³ I

Bach: Weltlich' Her' und zeitlich Gut:

1. Root position harmonization: This version ends with a half cadence. iii was maintained from the original because: the leading tone, B⁴, does not resolve to C⁵, and iii moves to vi, an ascending fourth progression. Last vi-IV-ii all share A⁴ in common, the bass moves obliquely between soprano and bass; vi-ii are Pd substitutes.

C: I iii vi IV ii V I IV V

2. Add inversions to make the bass more melodic. Here ii was substituted for IV at the penultimate chord, imitating the soprano voice (bt. 3).

C: I iii vi ⁴/₂ IV ⁴/₂ ii V ⁴/₂ I ⁶ ii ⁶ V

3. Complete the example by adding inner voices. A passing 7th was added to the iii chord.

C: I iii ⁷ vi ⁴ IV ⁴ ii V ⁴ I ⁶ ii ⁶ V

4. Compare to Bach's:

Bach: Weltlich' Ehr' und zeitlich Gut

Harmonization starting from a Figured Bass:

First analyze the example to see if/how/why it varies from part-writing guidelines.

Bach: Dir, dir, Jehova, will ich singen

Bb: I ⁶ V ⁴ I IV ⁶ ii ⁶ I vi IV V ³ I

1. Create a melody with chord tones using the bass and Roman numerals as a guide. Motion was added in mm. 2-4 so that soprano and bass balance each other. In Bach's example the soprano and bass imitate each other in m. 3, over the tonic and submediant.

Bb: I ⁶ V ⁴ I IV ⁶ I vi IV V I

2. Add the inner voices of each chord. Create an effective melody, and complete harmonization. Compare your work with Bach's.

B $\flat$: I — $\overset{6}{V} \overset{4}{3}$ I IV $\overset{6}{\text{—}}$ I vi IV V I

Bach: O Haupt voll Blut und Wunden

1. Bass voice and Roman numerals with a new melody:

D: I IV I $\overset{6}{\text{—}}$ IV $\overset{6}{\text{—}}$ V $\overset{6}{5}$ I ii $\overset{6}{5}$ V I

2. Inner voices added. Note how the soprano from Bach's example is used for most of the tenor.

D: I IV I $\overset{6}{\text{—}}$ IV $\overset{6}{\text{—}}$ V $\overset{6}{5}$ I ii $\overset{6}{5}$ V I

3. Compare your solution to Bach's:

Bach: O Haupt voll Blut und Wunden

D: I IV I $\overset{6}{\text{—}}$ IV $\overset{6}{\text{—}}$ V $\overset{6}{5}$ I ii $\overset{6}{5}$ V I

Objective: Students will use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7); and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Resolutions of the Dominant Seventh Chord (V-Mm7):

The tonic-dominant relationship is an important harmonic relationship in tonal music. Chords often progress using the tonic-dominant interval (ascending fourth, descending fifth); learning to resolve V7 in its inversions can be applied to all other 7th chords: I⁷-IV, iii⁷-vi, vi⁷-ii, ii⁷-V, V⁷-I; i⁷-iv, iv⁷-VII, VII⁷-III, III⁷-VI, VI⁷-ii, ii^{o7}-V, V⁷-i.

The V7 has two tendency tones; the leading tone, and the chordal 7th. These are the 4th, and 7th scale degrees, and form the interval of an augmented 4th, or diminished 5th. When these tones appear in outer voices (soprano, or bass), they must resolve by step.

Resolutions of the Dominant Seventh Chord (V-Mm7):

1. Root Position: Scale degrees resolve: 5-1, 2-1, 7-1, 4-3. Root position Mm7 chord resolves to a tonic triad with a tripled root and a third. Alternately the leading tone can be resolved to the fifth of the chord, if it is in an inner voice (alto, or tenor).
2. First Inversion: Scale degrees resolve: 5-5, 7-1, 2-1, 4-3. The leading tone in the bass of the first inversion V6/5 must resolve to the tonic.
3. Second Inversion: Scale degrees resolve: 5-5, 7-1, 2-1, 4-3. The bass of the second inversion V4/3 may resolve to 1, or 3.
4. Third Inversion: Scale degrees resolve: 5-5, 7-1, 2-1, 4-3. The bass of the third inversion V4/2 must resolve 4-3, to a tonic triad in first inversion.

1. 2. 3. 4.

G: V₃ I V₃ I V₃ I V₃ I V₂ I

3.7

Objective: Students will use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7); and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Guideline Summary:

Voicing:

- Distribute the notes of a chord using open or closed voicing. The interval between Bass and Tenor may exceed an octave.
- Double the bass voice except when it is a tendency tone or chromatically altered tone. Double the root of the chord as an alternate to doubling the bass.

Melodic motion:

- Keep each voice in its proper tessitura (range).
- Use contrary motion between outer voices (soprano and bass).
- Consecutive leaps of a third (arpeggio) may be used sparingly.
- Leaps of a P4 or greater must be followed by a step in the opposite direction.
- Avoid leaps of a tri-tone (augmented fourth, diminished fifth)

Voice-Leading:

- Parallel perfect octaves, fifths, and unisons are to be avoided. Approach and depart from perfect intervals using contrary motion.
- Conjunct (stepwise) motion is preferred for note-to-note motion in one voice.
- Keep common tones in the same voice, and move other voices by step.
- Review chord connection by a fifth, third, and second.
- Resolve tendency tones in Soprano and Bass voices. Do so if possible in the inner voices.
- Avoid crossing voices.

Master part-writing in stages:

- Harmonize chorale melodies using the harmonic and phrase models
- Use chordal inversions to create a melodic bass
- Write effective melodies when given a figured bass
- Employ non-chord tones in an effective manner
- Harmonize unfigured basses

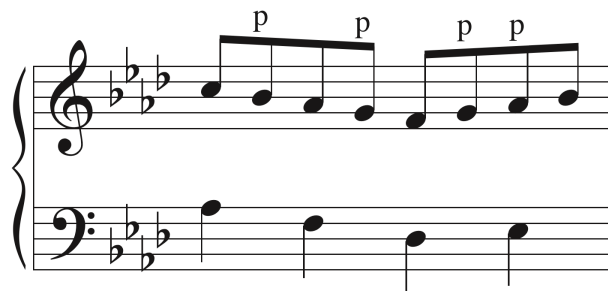
Objective: Students will identify and compose examples using non-chord tones (3.8).

Non-chord Tones:

Non-chord, or embellishing tones ornament or embellish chord tones. Non-chord tones are dissonant with the harmony, and they connect or embellish chord tones by step or leap.

Passing Tone:

A non-chord tone passing between two chord tones connecting by step through ascending or descending motion. Passing tones may occur on weak or strong beats. More than one passing tone can occur in sequence. In this instance, the first will generally be unaccented and the second accented. Passing tones can be diatonic, or chromatic; they are the most common non-chord tone.



Neighbor Tone:

A non-chord tone occurring a step above or below a chord tone which resolves back to the original chord tone. Neighbor tones are upper or lower depending on their relationship with the tone they embellish. The example shows a lower neighbor (LN) in the first measure and an upper neighbor (UN) in the second. The changing tone is a double neighbor tone where both upper and lower neighbors occur in sequence on either side of the same chord tone. Neighbor tones may be diatonic or chromatic.



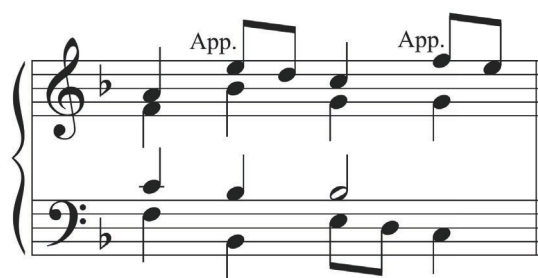
7-6 Suspension:



Appoggiatura:

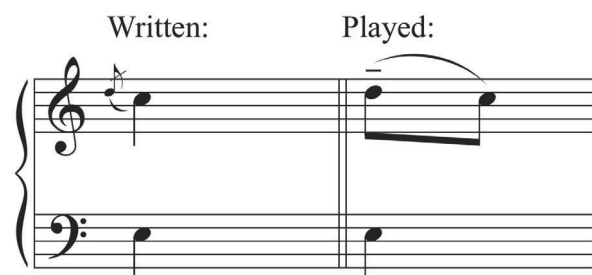
An appoggiatura is a leap to a dissonance that resolves by step to a chord tone.

Appoggiaturas are also called incomplete neighbor tones (IN).



The Appoggiatura is also an ornament; the literal meaning being to lean on or against.

The appoggiatura (ornament) is notated as a grace note the performance of which is a fraction of the rhythmic value of the note that follows.



Escape Tones:

An escape tone occurs when a line steps to a dissonance and then leaps to a consonance.

These are also called incomplete neighbor tones (IN).



Anticipation:

The anticipation is the incidence of a tone before the arrival of its supporting harmony. The tonic pitch is the most common anticipation. Sometimes an entire harmony as is used, this is called a rhythmic anticipation.

Corelli: Op. 5, no. 7, *Sarabande*

D: i 6 ii° 5-6 V # i

Rhythmic Anticipation:

For each of the following:

- Analyze harmonies with roman numerals and figure bass
- Identify cadences
- Circle and label all non-chord tones.

1. Bach: O Gott, du frommer Gott (Key of D)

In the chorale below passing tones occur on almost every off-beat in the bass voice.

There are also several neighbor tones.

Bach: O Gott, du frommer Gott

D:

2. Bach: Weltlich' Her' und zeitlich Gut (Key of C)

The following features several suspensions in the alto voice, passing tones on weak and strong beats, and several neighbor tones. Be sure to include suspensions in the figured

bass. To do this simply indicated the intervals above the bass note for the suspension and its resolution.

Bach: Weltlich' Ehr' und zeitlich Gut

The image shows a musical score for a piece by Bach titled 'Weltlich' Ehr' und zeitlich Gut'. It features a treble and bass staff. The bass line contains a suspension, where a note is held over from the previous measure and then resolves. The intervals above the bass note for the suspension and its resolution are indicated.

3. Mozart: Piano Sonata K. 333 (III), (Key of Bb)

Chromatic passing tones permeate mm. 37, 38. The E in m. 40 is a chromatic neighbor. The chord in m. 35 is a V/V (dominant of the V= F).

The image shows a musical score for Mozart's Piano Sonata K. 333 (III), measures 35-40. The score is in the key of Bb. Measure 35 is marked with a circled 35. The bass line shows a chromatic passing tone in measure 37 and 38. The E in measure 40 is a chromatic neighbor. The chord in measure 35 is a V/V (dominant of the V= F).

Bb:

4. In the following Trio Sonata of Corelli (Key of Eb) note the number of suspensions. The basso continuo bass employs third outlines; suspension intervals are analyzed above the lowest bass pitch for each.

Corelli: Trio Sonata, Op. 4, no. 11, mm. 5-9

The image shows a musical score for Corelli's Trio Sonata, Op. 4, no. 11, measures 5-9. The score is in the key of Eb. The bass line shows third outlines and suspensions. The intervals above the lowest bass pitch for each suspension are analyzed.

Eb: vi ii V I ii iii IV ⁶vii° I ii V I

Objective: Students will use part-writing guidelines to realize harmonizations in four voices SATB (2.9-10; 3.1; 3.3-7); and analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Passing tones and chordal sevenths:

Contrapuntally, the chordal seventh arises as a passing tone. To distinguish whether a tone is a chordal seventh or a passing tone assess its functions in context.

There are two criteria:

1. The roots of the two harmonies must be separated by a descending fifth, an ascending fourth, or an ascending second.
2. The chordal seventh must resolve downward.

A: V⁷ I A: V⁷ vi A: I vi

Bach: Weltlich' Ehr' und zietlich Gut

1. B⁴ (soprano) is potentially part of a tonic (C) chord. The root motion, C-F, is an ascending fourth, and B⁴ resolves down to A⁴. B⁴ fulfills both criteria to be analyzed as a chordal seventh.
2. E⁴ (alto) is potentially part of the predominant (F) chord. The next harmony is also F. E⁴ is either a lower neighbor embellishing F.
3. E³ (bass). A scalar descent from the root of a chord often forms a third inversion seventh chord. This inversion must resolve to a chord in first inversion. The root relationship between F, and the D chord that follows does not fulfill criteria #1. E³ is a passing tone.
4. F³ (bass) this chord is analyzed as the dominant, and it leads to the tonic fulfilling criteria #1. The bass resolves down by step, fulfilling criteria #2. This is a dominant chord in third inversion that resolves to a tonic in first inversion.
5. B⁴ soprano. The relationship between the roots of these chords fulfills criteria #1, and B⁴ resolves downward fulfilling criteria #2. Analyze this tone as a chordal seventh.

Bach: Weltlich' Ehr' und zeitlich Gut

C: I IV ii V I IV I

The final analysis shows all non-chord tones in the example. This example appeared earlier in this section. Compare your analysis with the one below.

Bach: Weltlich' Ehr' und zeitlich Gut

C: I $\frac{6}{5}$ IV ii V $\frac{4}{2}$ I $\frac{5}{5}$ IV I

Complete the analysis of chord tones and non-chord tones in this example:

Bach: O Gott, du frommer Gott

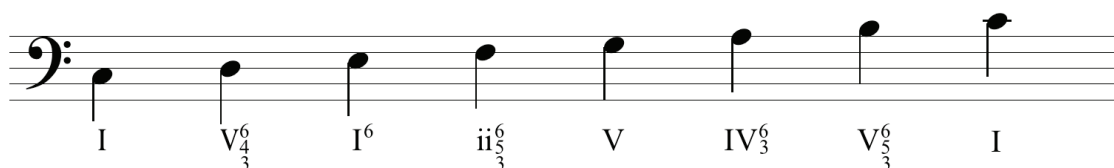
D: I IV ii V I IV I

Objective: Students will analyze harmonies using Roman numerals and figured bass (2.5, 3.1-3; 3.8-9).

Second inversion chords and the Rule of the Octave:

Examining chords found in The Rule of the Octave we find that there are:

- 3 root position chords
- 2 first inversion triads
- 2 first inversion seventh chords
- 1 second inversion seventh chord.



In RoO the use of second inversion triads occurs once, if this is an indication of general use, we would expect that second inversion triads occur infrequently. Examine the use of second inversion in the examples to follow.

This chorale excerpt uses a second inversion seventh chord on beat two of the first measure. It is a passing $6/4/3$; the use mirrors RoO.

Bach: Dir, dir, Jehova, will ich singen

PAC HC

Bb: $I_{6/4}^6$ $V_{3/4}^4$ I $IV_{6/4}^6$ $ii_{5/3}^6$ I vi IV $V_{4/3}^7$ I $V_{6/4}^6$ I $V_{2/4}^6$ $I_{6/4}^6$ $vii_{6/4}^6$ $I_{6/4}^6$ $V/V_{2/4}^6$ V

This excerpt also uses the second inversion seventh chord on V from RoO (m. 3).

Clementi: Op 36. no. 3

G: $V_{6/4}^7$ $IV_{6/4}^6$ $V_{6/4}^6$ I $V_{4/3}^6$ $I_{6/4}^6$ $V_{6/4}^7$ I

The excerpt from Schubert features a PAC in the last measure of the phrase. Note the second inversion tonic chord preceding the cadence. This use of a second inversion tonic triad is called a cadential 6/4 chord.

Schubert: Op 9, #3, Waltz

Ab: I IV ii⁶ V V⁷ I⁴ V⁷ I

The following uses a second inversion IV chord following the root position tonic in mm. 1-4; both share the same bass, which serves as a pedal point; thus this use of the second inversion chord is called Pedal or embellishing 6/4.

Beethoven: Op. 14, no. 2, Piano Sonata

G: I IV^{6/4} V⁶ I ii⁶ I⁴ V I

Second Inversion Triads:

There are four specific uses for second inversion chords. The reason being that the second inversion triad is the least stable of the three positions for a chord. Thus, its use is restricted to well-defined contexts. The example below displays triad positions in order of relative stabilities.

Most → Least stable

G: I 6/3 6/4

Four Uses of the Second Inversion chords:

1) Passing:

The passing 6/4 occurs as the middle chord of a three pitch scalar ascent or descent in the bass voice. Analyze the harmonies, and note that the 6/4 and 6/4/3 are part of a T-D-T motion. All voices are conjunct in both examples, and the 6/4 chord is the central chord whether the bass ascends or descends.

Diagram 1: Passing 6/4 chord in F major, ascending bass line. The bass line moves from F2 to C3 to F3. The chords are F: I, V⁶₄, and I⁶.

Diagram 2: Passing 6/4 chord in F major, descending bass line. The bass line moves from F3 to C3 to F2. The chords are F: I, V⁶₃, and I⁶.

Diagram 3: Passing 6/4 chord in F major, ascending bass line. The bass line moves from F2 to C3 to F3. The chords are F: I, V⁶₄, and I⁶₃.

Diagram 4: Passing 6/4 chord in F major, descending bass line. The bass line moves from F3 to C3 to F2. The chords are F: I⁶, V⁶₃, and I.

2) Cadential:

The Cadential 6/4 is part of an authentic cadence; in it a tonic chord in second inversion precedes either a V, or V7 chord which then cadences on the tonic—PAC, or IAC. The bass of the cadential 6/4 is the 5th scale degree and for this reason the chord can be analyzed as part of the dominant.

Mozart: K. 284, Piano Sonata, mvt. 3

Clementi: Op. 36, no. 3, mvt. 1

Diagram 5: Cadential 6/4 chord in D major (Mozart). The bass line moves from A2 to F#2 to D3. The chords are D: I, ii⁶, I⁶₄, V⁷, and I. The I⁶₄ and V⁷ are grouped under a bracket labeled V.

Diagram 6: Cadential 6/4 chord in C major (Clementi). The bass line moves from G2 to E2 to C3. The chords are C: ii⁶, I⁶₄, V, and I. The I⁶₄ and V are grouped under a bracket labeled V.

The Passing and Cadential 6/4 are the two most common uses of second inversion triads.

3) Pedal:

In the Pedal 6/4 the bass voice is typically the root of the tonic chord, and the second inversion IV chord comes about by raising the 3rd and 5th of the tonic chord by one step. The pedal 6/4 may return to the root position chord it embellishes, or it can move to V as is shown in the example from Beethoven. The I 6/4 chord appearing before the cadence is a cadential 6/4.

G: I IV^{6/4} I

Beethoven: Op. 14, no. 2, Piano Sonata

G: I IV^{6/4} V^{6/4} I ii^{6/4} I^{6/4} V I

Arpeggiated:

In the Arpeggiated 6/4 the second inversion chord arises when the bass voice arpeggiates a triad.

Schumann: Wilder Reiter

G: I 6/3 6/4

F: V I^{6/4} 6/3 6/4 6/4

Written Assignment 8 (3.1-3.2):

1) Use the Rule of the Octave to determine the chords of the following examples. Write two analyses, one with roman numerals and figured bass indicating chords expected when the Rule of the Octave is applied, and a second that shows chords that actually occur.

A) In the following, ignore tenor F#3 on beat three of m. 1, and use the F#3 on beat two of m. 2 instead of G3 on beat one for your harmonic analysis; what non-chord tone is the G3?

Bach: Was Gott tut, das ist wohlgetan

G:

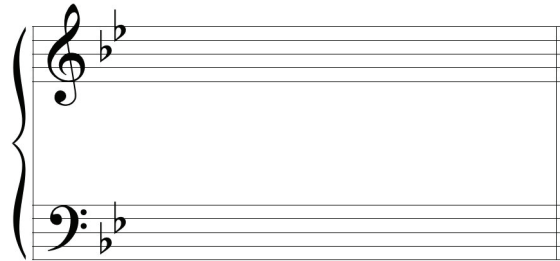
B) In this example chords appear on each beat. Use the lowest pitch as your bass, and determine chords by stacking the four sixteenths above the bass. Be sure to play the example after you have determined chords using RoO. The bass pitch for the last measure is G3, not D3.

Clementi: Op 36. no. 3

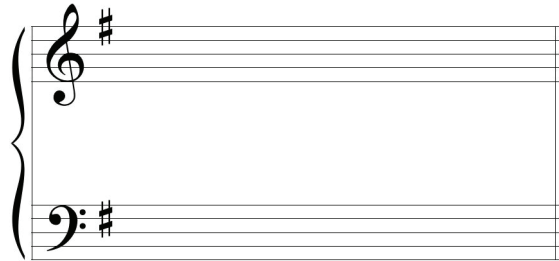
G:

2) Write the following cadences in two voices using one chord tone on each staff (e.g. Soprano on the treble staff, Bass on the bass staff). Follow examples in section 3.2, and analyze your examples using figured bass, and Roman numerals.

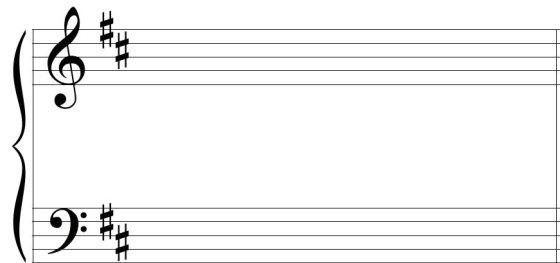
A) PAC in Bb Major



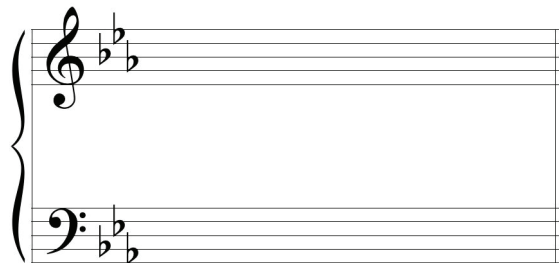
B) PAC in G Major



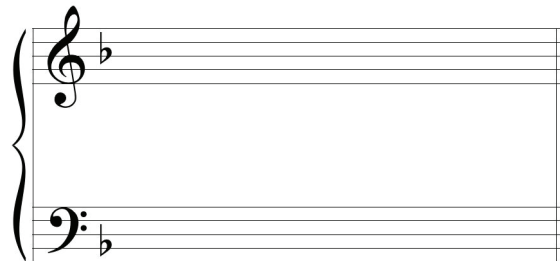
C) IAC in D Major



D) Half Cadence in Eb Major



E) Half Cadence in F Major



Written Assignment 9: (3.3-3.4):

1. Harmonize each of the following using the Harmonic Model. Write Roman Numerals below the staff for each pitch in the example. There may be cases where you can repeat a chord. All harmonizations should follow basic Phrase models: T-D-T, T-Pd-T, T-Pd-D-T; or normal chord progression: D-T, Pd-D etc.



F: I V I



F:



Eb:



Bb:



C:



D:

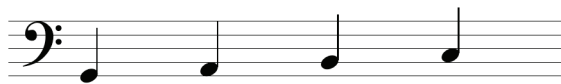
2. Write Roman Numerals and figured bass as would be dictated by the Rule of the Octave for each example.



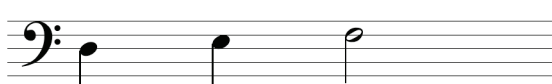
D: I V I



D:



C:



C:



G:



F:

3. Analyze the following example using Roman Numerals and figured bass.

Bach: Gottes Sohn ist kommen

4. Harmonize the melody (soprano) of this example using the harmonic model. Change the C#5 on m. 4, bt. 2 to C5. Follow examples from 3.5.

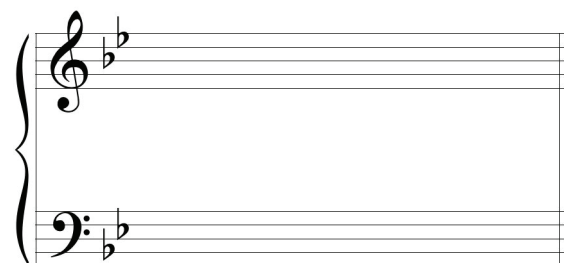
- a. Write the fundamental bass harmonization on the bass staff below choosing primary or secondary chords at your discretion. Use one chord for each pitch of the soprano.

- b. Using your fundamental bass harmonization above, add inverted chords, alto and tenor voices to complete the four-part harmonization. Follow part-writing guidelines (Summary: 3.7).

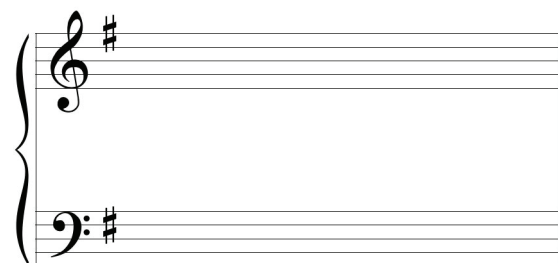
Written Assignment 10:

1. Write the following Cadences in four voices (SATB). Analyze your work using Roman numerals and figured bass. Avoid parallel perfect intervals and resolve all tendency tones in outer voices.

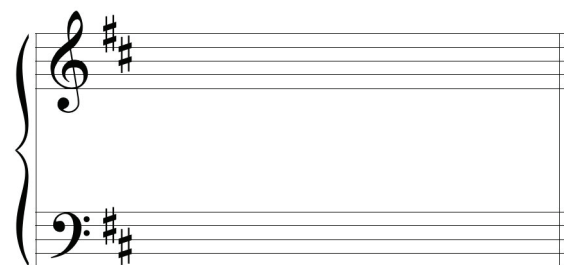
A) HC in Bb Major



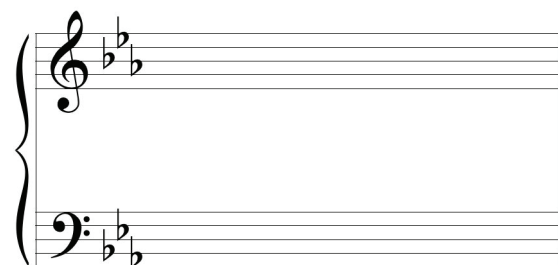
B) IAC in G Major



C) PAC in D Major



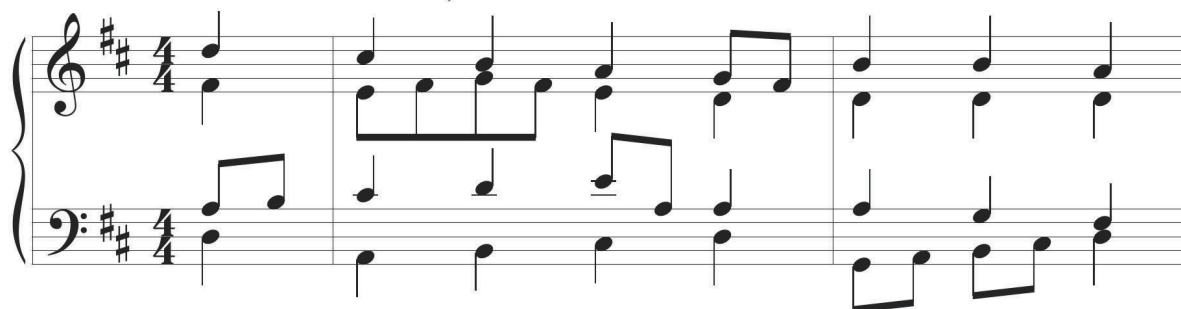
D) PAC in Eb Major



2. Analysis and composition of SATB chorales.

- a. Analyze chords with Roman numerals and bass figures. In this example some chords appear on off-beats. Check T-D-T, T-Pd-T, T-Pd-D-T. Label all non-chord tones.

Bach: Herzlich lieb hab ich dich, o



D:

- b. Compose an example in four parts (SATB) using the bass and figured bass from part a.

D:

- c. Analyze the chords with Roman numerals and bass figures.

Bach: An Wasserflüssen Babylon

G:

- d. Compose an example in four parts (SATB) using the melody from part c. Choose your own harmonies using the harmonic model and your analysis from c. as a reference.

G:

Written Assignment 11 (3.7-3.8):

1. Each of the following examples contains an error(s) that violates part-writing guidelines found in 3.7. Circle the error and label it (e.g. parallel fifths, spacing, doubled tendency tone etc.).

2. Label non-chord tones in the excerpts that follow. Label the preparation, suspension, and resolution of suspensions in the figured bass as intervals above the bass voice (e.g. 4-3).

Bach: Gottes Sohn ist kommen

Excerpt 1: Measures 1-4 of 'Gottes Sohn ist kommen'. The music is in G major (one sharp) and 4/4 time. The treble and bass staves show a sequence of chords and moving lines. The bass line features a suspension in measure 2, where a G note is held from the previous measure and then resolves to an F# in measure 3.

Bach: An Wasserflüssen Babylon

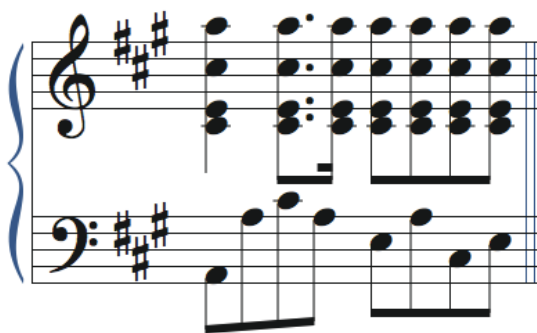
Excerpt 2: Measures 1-5 of 'An Wasserflüssen Babylon'. The music is in G major (one sharp) and 4/4 time. The treble and bass staves show a sequence of chords and moving lines. The bass line features a suspension in measure 2, where a G note is held from the previous measure and then resolves to an F# in measure 3.

Bach: Christus, der ist mein Leben

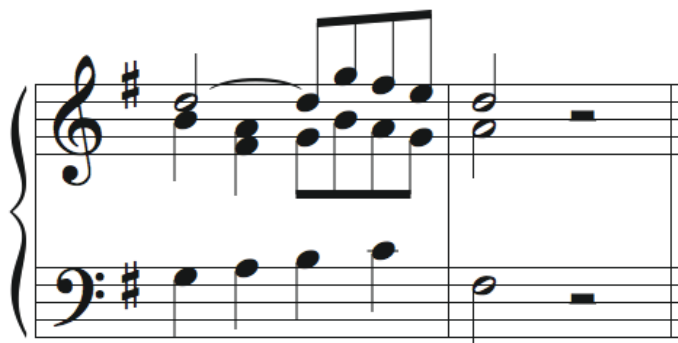
Excerpt 3: Measures 1-8 of 'Christus, der ist mein Leben'. The music is in F major (one flat) and 4/4 time. The treble and bass staves show a sequence of chords and moving lines. The bass line features a suspension in measure 2, where a Bb note is held from the previous measure and then resolves to an A in measure 3.

Written Assignment 12 (3.10):

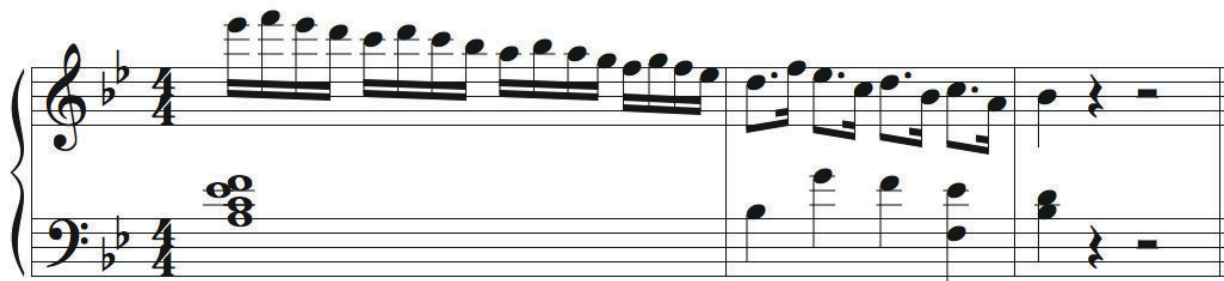
1. Identify the second inversion chords in the examples that follow. Analyze them with roman numerals, figured bass, and a label that identifies the type.



A:



G:



Bb:



Cm:

2. Compose examples in SATB that use second inversion chords indicated by the figured bass.

The musical score consists of four systems, each with a treble and bass staff. The bass staff contains notes and figured bass symbols. The treble staff contains accidentals for the key signature.

System 1: Treble staff has three sharps (F#, C#, G#). Bass staff has notes A, G, F, E with figured bass symbols I, V⁴, I, and 6. Treble staff has a sharp sign.

System 2: Treble staff has one sharp (F#). Bass staff has notes G, F, E, D with figured bass symbols I, IV⁴, I, and 6. Treble staff has a sharp sign.

System 3: Treble staff has two flats (Bb, Eb). Bass staff has notes Bb, Ab, Gb, F with figured bass symbols IV, 6, 6, 4, 6. Treble staff has two flat signs.

System 4: Treble staff has one flat (Bb). Bass staff has notes F, Eb, D, C with figured bass symbols I⁴, V, I, and 6. Treble staff has one flat sign.

A: I V⁴ I 6
G: I IV⁴ I 6
Bb: IV 6 6 4 6
F: I⁴ V I 6



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