

Name: _____

Unit: _____

Cadet Music Theory Workbook

Level Two

Updated 7 Oct 2019

Level 2

Circle of Fifths

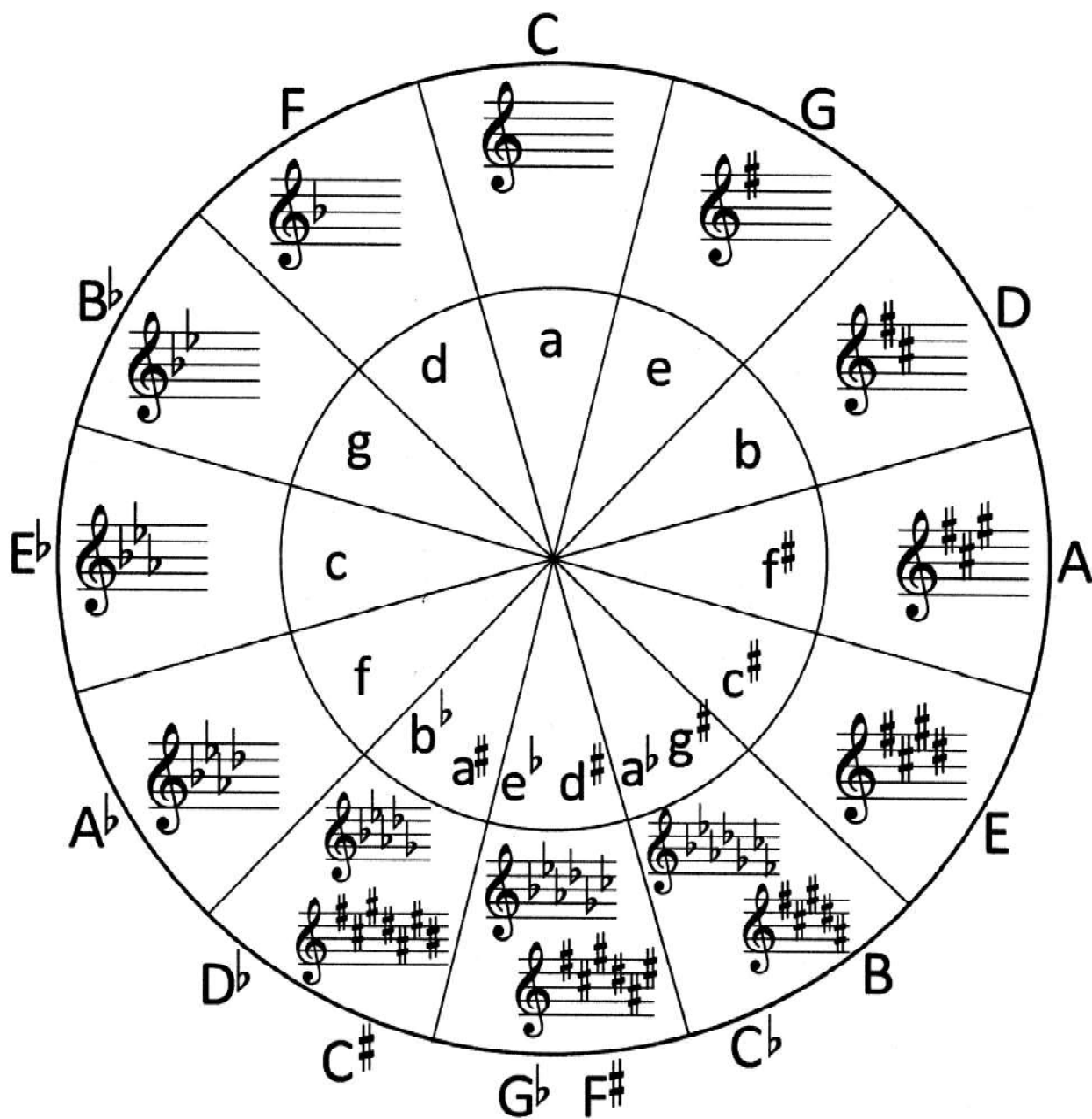


Figure A-2 Circle of Fifths

Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Circle of Fifths—Blank

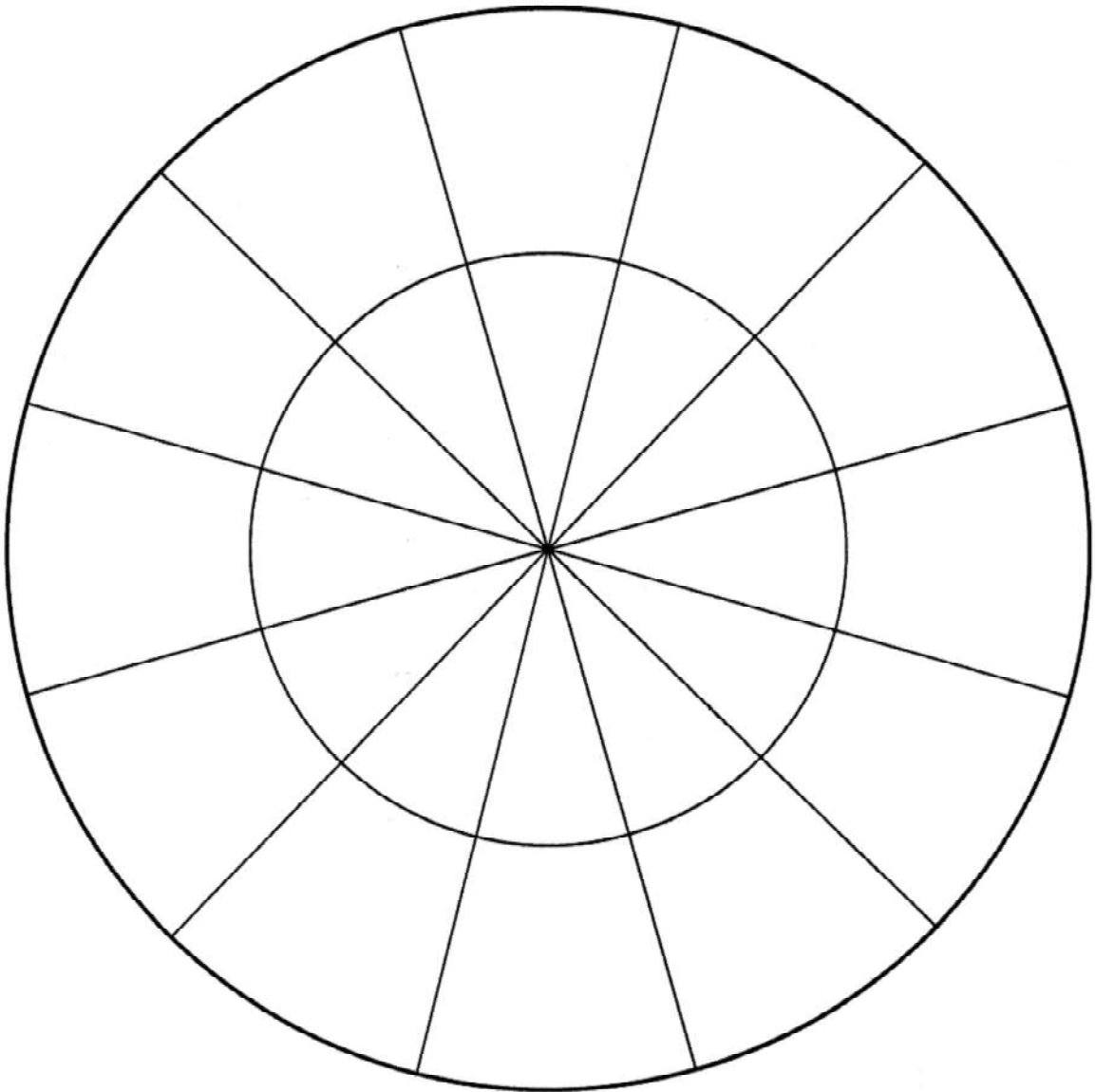


Figure A-1 Circle of Fifths—Blank

Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Scale Degrees

7. In Level One, you studied that a scale is an alphabetical arrangement of eight notes beginning and ending with the same note; e.g C-C, D-D, etc. Each note has a function, “a degree”, in a scale and can be given its own technical name regardless of where it is written or played.

Degree	Function
I	Tonic
II	Supertonic
III	Mediant
IV	Subdominant
V	Dominant
VI	Submediant
VII	Leading note
VIII	Octave or tonic

8. The notes or degrees of a scale are numbered in Roman Numerals based on their particular function.
9. Of all the degrees in a scale, some have more important functions than others:
- a) **Tonic (I).** The most important note of any scale is the tonic because it gives its name to the key. It is both the lowest and highest tone of the scale.
 - b) **Dominant (V).** The dominant is also an important degree. The word comes from the Latin “dominus” meaning master. The chord built on the dominant is so strong that it masters the key.
 - c) **Mediant (III).** The mediant is also an important degree. It is the middle note between the tonic and the dominant and it determines whether or not the scale is major or minor.

- d) Leading Note (VII). The seventh degree, otherwise known as the leading note, is also necessary in order to identify the key. It is always a semitone below the tonic and leads directly to it. (The seventh scale degree is referred to as subtonic only when the distance between it and the tonic is a tone apart).
- e) The names of the other degrees are based on where they are placed in the scale and are secondary to the primary degrees mentioned above.

Terms

Italian	English
Lento	slow
Adagio	at ease (not as slow as largo, but slower than andante)
Andante	moderate tempo; walking speed
Moderato	moderately
Allegretto	slightly slower than Allegro
Allegro	lively, quick
Vivace	fast, vivacious
Presto	quick
poco	little
poco a poco	little by little
piu	more
piu mosso	more motion (faster)

A) Match each degree with its technical name:

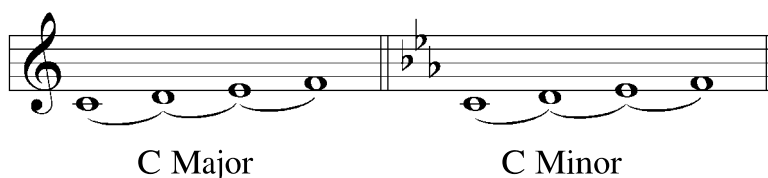
I	Mediant
II	Subdominant
III	Supertonic
IV	Tonic
V	Leading note
VI	Octave or tonic
VII	Superdominant
VIII	Dominant

B) Why is the seventh degree (VII) called the leading note?

C) Why is the mediant's role important in a scale?

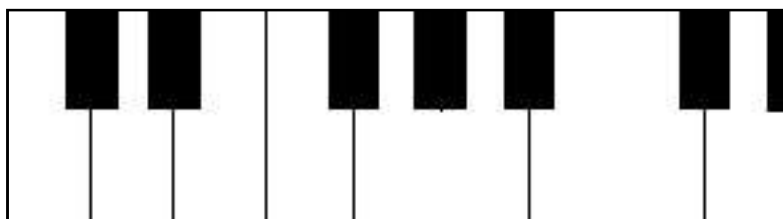
Relative Minor Scales

- 45.** The minor scale has three forms: natural minor, harmonic minor, and melodic minor. In this level, the first two will be studied. You will study the melodic minor in level three.



- 48.** All minor scales are named relative minor scales because they are formed from a major scale. In other words, each major scale has its three relative minor scales. These two scales are connected because they share the same key signature, that is, the minor scale uses the key signature of its relative major.
- 49.** To find the relative minor of any major key, you must take the tonic of the major scale, and move backwards three semitones.

Example: C major (A, B^b, B, C)



50. Each scale degree of a scale (major or minor) is associated with a roman numeral.

e.g.

C major	C	D	E	F	G	A	B	C
	I	II	III	IV	V	VI	VII	VIII/or I
D harmonic minor	D	E	F	G	A	Bb	C#	D
	I	II	III	IV	V	VI	VII	VIII/or I

Note: You may also use the sixth degree of the major scale to find the new tonic of the minor scale.

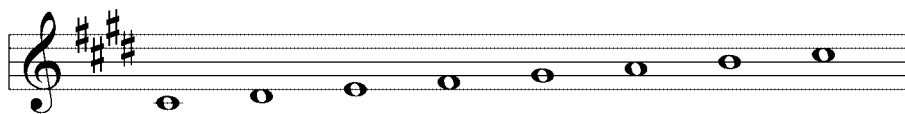
51. By taking this new note as the tonic, you create another scale (a series of 8 notes in scale pattern) keeping the same signature as the relative major scale.



e.g. A minor is a relative minor of C major.

52. The **natural minor** is one which uses the same key signature as its major relative scale with no changes. Therefore, the natural minor scale of A borrows the key signature of its relative major scale of C.

Here is an example using the major scale of E.

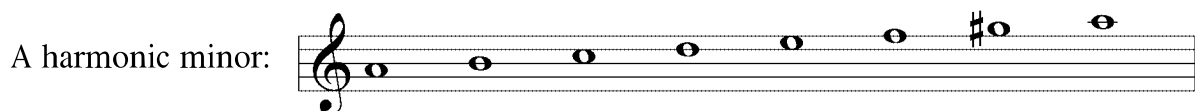


To find the relative minor you must use the tonic and move backwards three semitones. You may also use the sixth degree of the major scale. Both will give you the new tonic of the minor scale.

You have now found the relative minor scale of E major.

53. To find the relative harmonic minor, you proceed in the same manner as for the natural minor scale. However, certain changes are needed to distinguish between the two minor scales. In the relative **harmonic minor**, you have to raise the seventh (VII) degree of the scale by a semitone.

54. As in a previous example, the relative minor of C major is A minor. To have an A harmonic minor scale, you raise the seventh (VII) degree by one semitone.



Note: If the seventh degree is already flat, you have to cancel the alteration so the distance remains a semitone apart. If, on the other hand, the seventh degree is sharpened, you have to alter the alteration with a double sharp to maintain the distance of the semitone.

55. In summary, here is a comparison of the three scales that you have studied. All the scales have C as their tonic.

C major

Tone Tone Semitone Tone Tone Semitone

C natural minor

Tone Semitone Tone Semitone Tone Tone

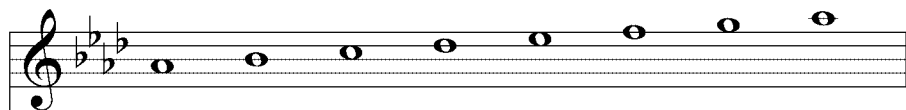
C harmonic minor

Tone Semitone Tone Semitone 1 1/2 Tone Semitone

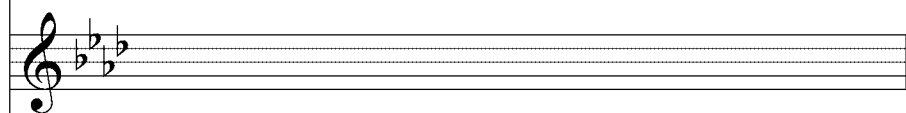
A) What degree of the major scale do you use to find its relative minor?

B) Find the relative minor scale of the following major scales.

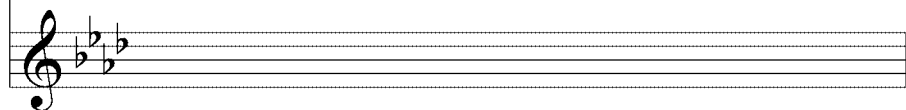
1) major scale



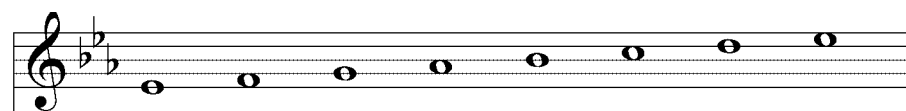
natural minor
scale



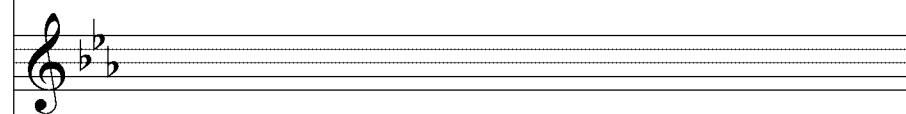
harmonic scale



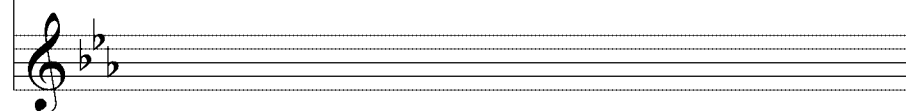
2) major scale



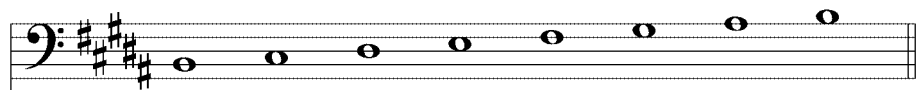
natural minor
scale



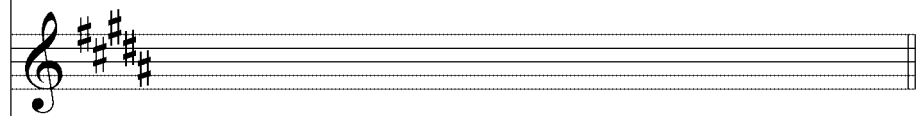
harmonic scale



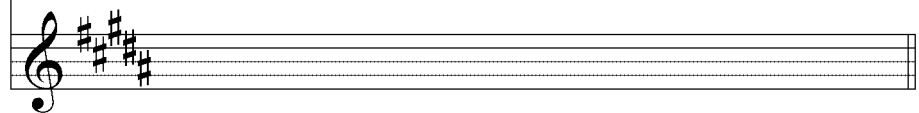
3) major scale



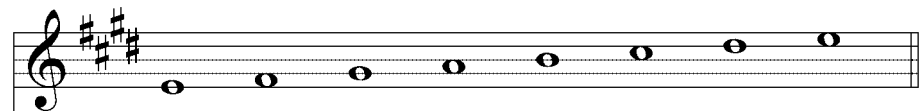
natural minor
scale



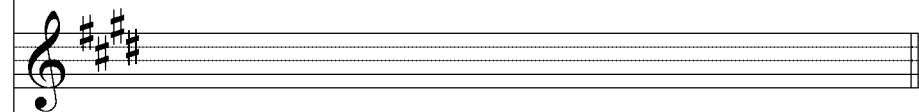
harmonic scale



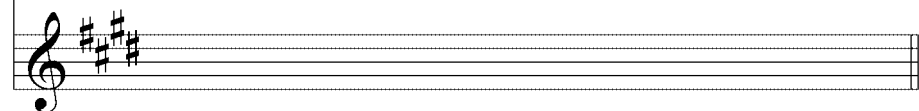
4) major scale



natural minor
scale



harmonic scale

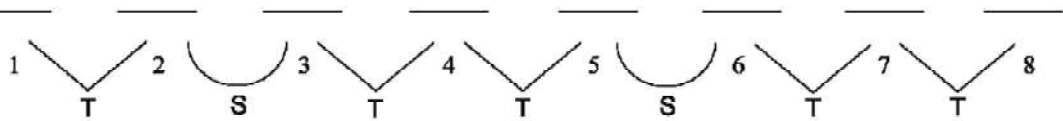


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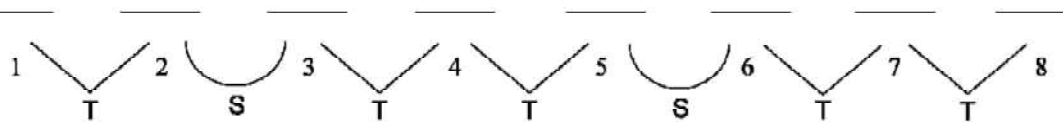
Write Minor Scales

1. Write the following natural minor scales using the tone-semitone pattern in quarter notes.

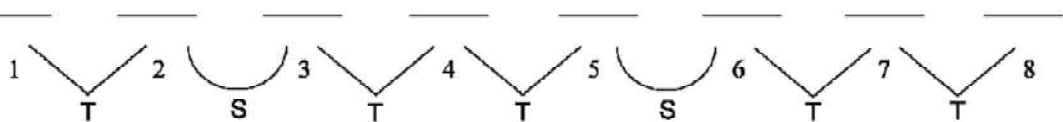
- a. A natural minor:



- b. Bb natural minor:

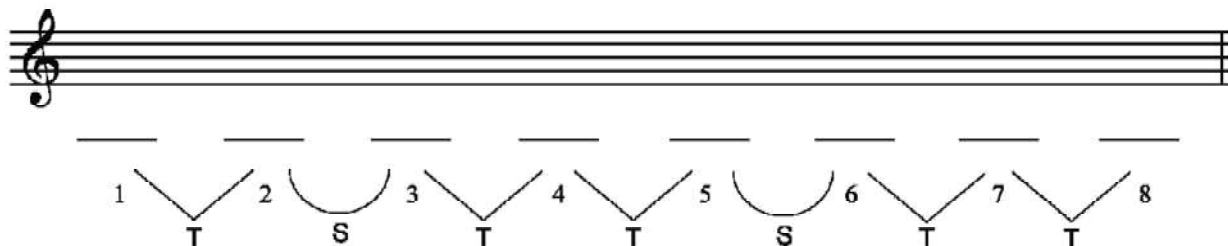


- c. D natural minor:



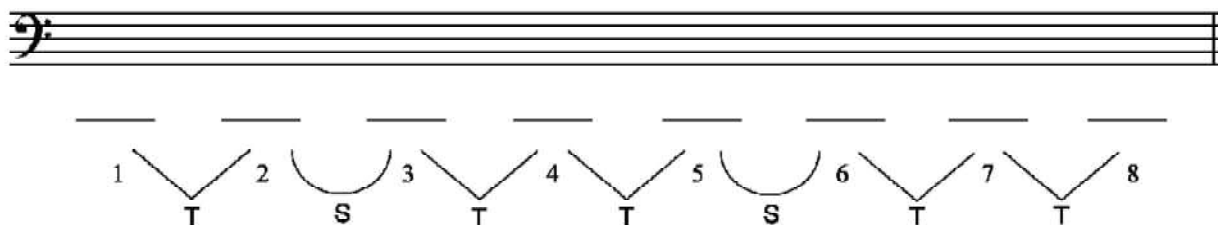
2. Write the following harmonic minor scales using the tone-semitone pattern in quarter notes.

a. F harmonic minor:



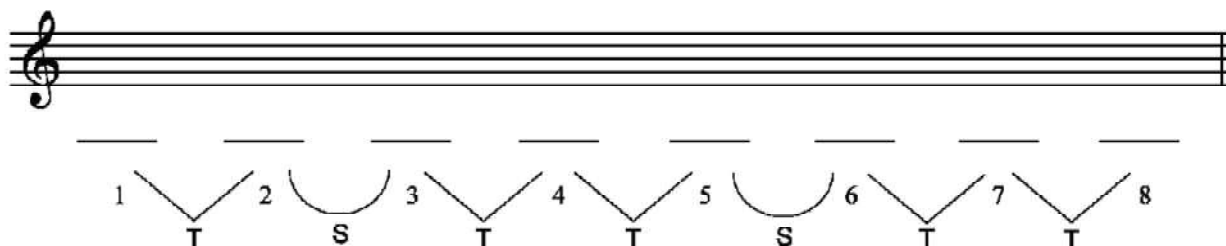
A musical staff with a treble clef and a key signature of one flat (Bb). Below the staff is a diagram showing the interval pattern for a harmonic minor scale: 1 (T), 2 (S), 3 (T), 4 (T), 5 (S), 6 (T), 7 (T), 8. The letters T and S represent tone and semitone intervals respectively.

b. D harmonic minor:



A musical staff with a bass clef and a key signature of two sharps (F# and C#). Below the staff is a diagram showing the interval pattern for a harmonic minor scale: 1 (T), 2 (S), 3 (T), 4 (T), 5 (S), 6 (T), 7 (T), 8. The letters T and S represent tone and semitone intervals respectively.

c. G harmonic minor:



A musical staff with a treble clef and a key signature of one sharp (F#). Below the staff is a diagram showing the interval pattern for a harmonic minor scale: 1 (T), 2 (S), 3 (T), 4 (T), 5 (S), 6 (T), 7 (T), 8. The letters T and S represent tone and semitone intervals respectively.

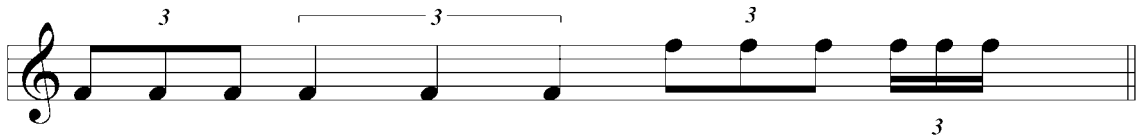
3. Add an accidental(s) to make the following natural minor scale a harmonic minor scale.



A musical staff with a treble clef and a key signature of no sharps or flats (C major). The scale is written in quarter notes: C, D, E, F, G, A, B, A, G, F, E, D, C. The notes are: C (C4), D (D4), E (E4), F (F4), G (G4), A (A4), B (B4), A (A4), G (G4), F (F4), E (E4), D (D4), C (C4).

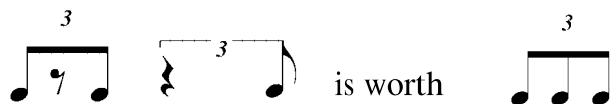
The Triplet

1. When three notes are grouped together with a figure “3” above or below the notes, the group is called a triplet. A triplet is meant to be played in the time of two notes of the same value. They are most frequently found in simple time.



Note: The most common triplets are those that consist of quarter, eighth, and sixteenth notes.

2. Rests can also be part of a triplet. Its value represents the note it is replacing.



- A)** Indicate with one note the equivalent of the following triplets:

1)  = _____

2)  = _____

3)  = _____

B) Add bar lines to make complete measures according to time signature indicated.

1)



2)

























































C) Add triplets to complete each bar.



Understanding all the Regular Time Signatures

1. The following chart compares simple and compound time signature.

	SIMPLE TIME	COMPOUND TIME
DUPLE (2 beats)	$\frac{2}{2}$  	$\frac{6}{4}$  
	$\frac{2}{4}$  	$\frac{6}{8}$  
	$\frac{2}{8}$  	$\frac{6}{16}$  
TRIPLE (3 beats)	$\frac{3}{2}$   	$\frac{9}{4}$   
	$\frac{3}{4}$   	$\frac{9}{8}$   
	$\frac{3}{8}$   	$\frac{9}{16}$   
QUADRUPLE (4 beats)	$\frac{4}{2}$    	$\frac{12}{4}$    
	$\frac{4}{4}$    	$\frac{12}{8}$    
	$\frac{4}{8}$    	$\frac{12}{16}$    

2. It is very important to understand that in simple measures, the beats are divisible by two, and in compound time, the beats are divisible by three.
3. Observe attentively the time signatures that are less common, for you will surely find them in your musical pieces.

Note: As in simple time, notes and rests in compound time are grouped so as to make the divisions of the beats as clear as possible. All the notes belonging to one beat are grouped together.

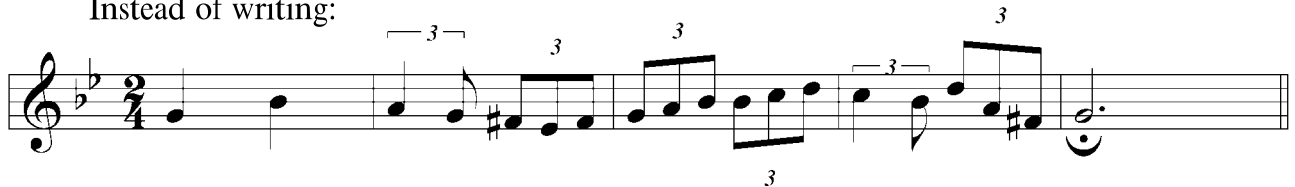
Compound Time Signatures

3. There are two categories of time signatures – SIMPLE and COMPOUND. Compound time is divided into the same three groups as simple time, called COMPOUND DOUBLE (meaning two), COMPOUND TRIPLE (meaning three), and COMPOUND QUADRUPLE (meaning four).
4. In compound time, notes are grouped in a three beat pattern called pulses.

***Note:** While the term pulse is normally used to refer to a beat, for the purpose of explaining compound time clearly, the word "pulse" here refers to a DIVISION of the beat and not the beat itself. (For example in 6/8 time, each eighth note is a pulse).*

5. In 2/4 time, there are two beats or pulses in a bar, and in 6/8 time, there are six beats or pulses (that is, two groups of three beats) in a bar. As in simple time, notes and rests in compound time are grouped so as to make the divisions of the beats as clear as possible. All the notes belonging to one beat are grouped together. Notes in compound time are usually in the form of dotted notes.

Instead of writing:

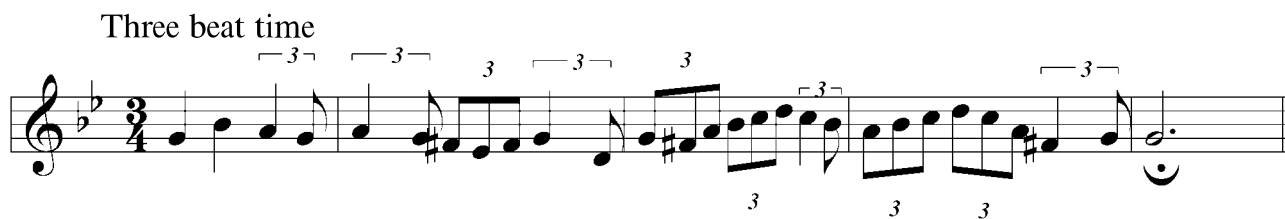


We write:

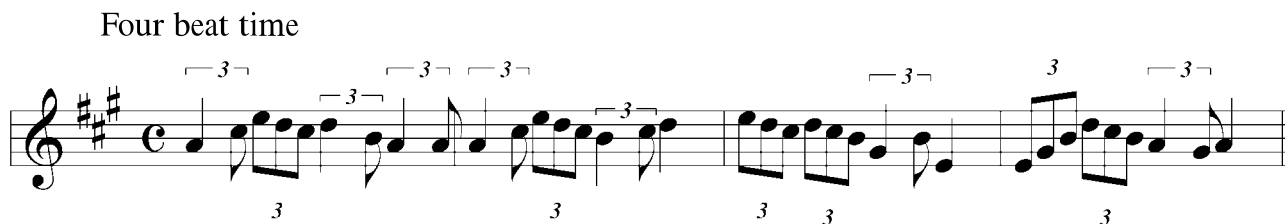


In referring to the previous examples, you can see that the complicated rhythms found in the simple time are simplified in the compound time.

6. The following are examples comparing simple to compound time:



Replaced by:



Replaced by:



A) Indicate the bar lines in reference to the time signature:

1)



2)



3)



B) Complete the following measures with a note or a rest.



To Find the Key of a Given Melody

10. Each musical piece is written in a key. This key is determined by what is found in the key signature. Each key is determined by a grouping of sharps or flats written at the beginning of the musical piece. This key signature makes it unnecessary to write repeated accidentals throughout the music.
11. Given the key signature and a melody, the music may be written in either the major or minor key.
12. Apart from the key signature, there are other reference points that could help in determining the key of a musical piece. Firstly, the last note of the piece is usually the tonic of the key used. Secondly, a melody in a minor key will usually contain an accidental beside the raised seventh.

ATTENTION: *Do not forget that this note is altered a semitone higher than what is normally found in the major scale.*

Let's observe the following excerpts:



The first melody has no accidentals except those which belong to the diatonic major scale of G. It also ends on the tonic.



In the second melody, not only do we find the key signature of one sharp, but we find a D# which is the leading note of E minor. This melody also ends on the tonic.

A) State the key of each melody:

1)



2)



3)



4)



Intervals

13. An interval in music is the distance in pitch between two notes.
14. The size of an interval is measured by the number of letter names contained in the interval including both the bottom and top notes. Accidentals are not included when counting the numerical distance between the notes. The accidentals will only determine the nature of the interval which will be discussed in the coming levels.

Note: An interval is always calculated from bottom to top with the lower note counted as 1.
An interval that passes an octave is considered compound.

Two notes or more of the same sound is called unison.

A second (2nd) is an interval composed of two degrees

A third (3rd) is an interval composed of three degrees

A fourth (4th) is an interval composed of four degrees

A fifth (5th) is an interval composed of five degrees

A sixth (6th) is an interval composed of six degrees

A seventh (7th) is an interval composed of seven degrees

An octave (8^{ve}) is an interval composed of eight degrees

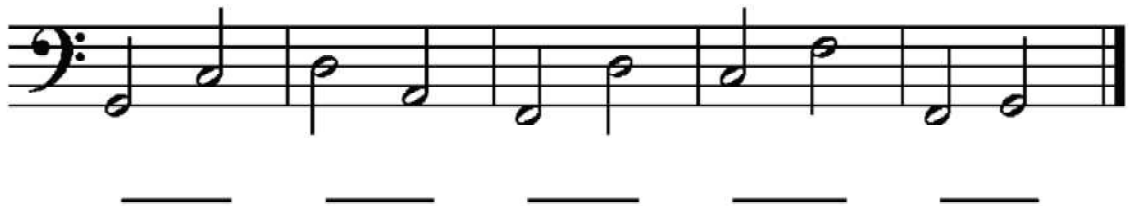


Identify Intervals by Distance

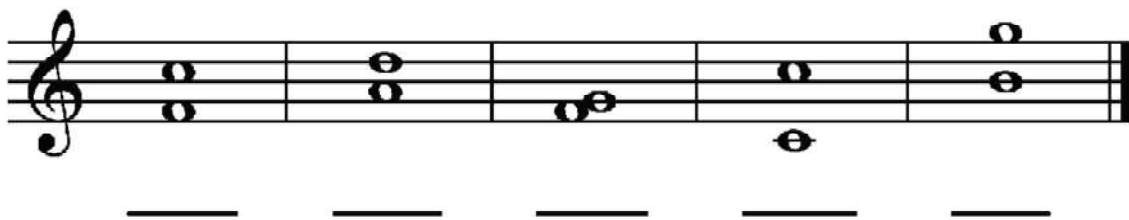
1. Complete the following chart.

Scale	Scale Degree	Note Name	Degree Name
	1	F	Tonic
D major		A	
C major	3		Mediant
A \flat major		D \flat	Subdominant
	5	E \flat	
C major		A	Submediant
D major	7		Leading tone
E \flat major		E \flat	Octave

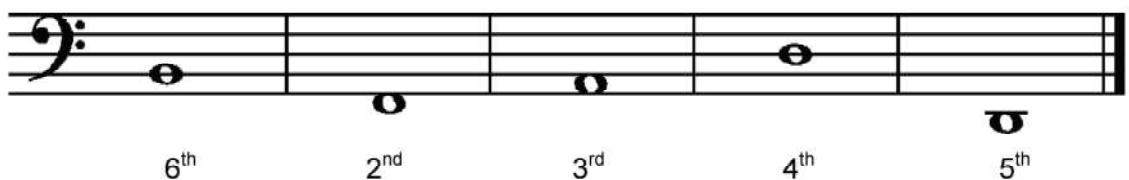
2. Identify the distance of each interval.





3. Identify the distance of each interval.





4. Write the following harmonic intervals.



A) Write the triplet that corresponds with the note indicated below:

1)  = _____ 3)  = _____

2)  = _____ 4)  = _____

B) What is the technical term of each scale degree:

1) VI = _____

3) III = _____

2) IV = _____

4) VII = _____

3) I = _____

6) V = _____

C) Which degree of the scale plays an important role? _____

D) Find the keys in the following excerpts

1)



2)



3)



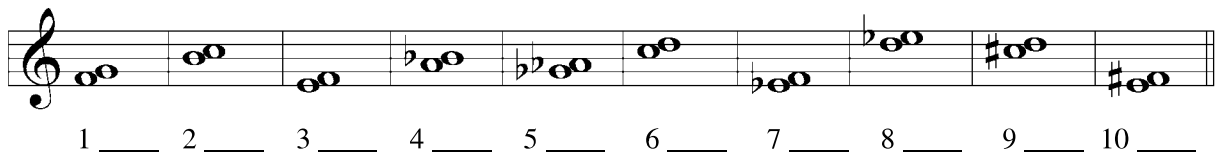
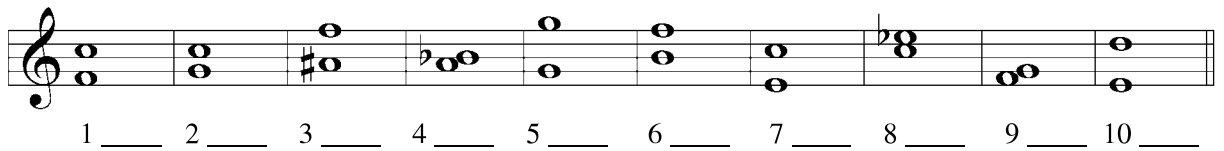
4)



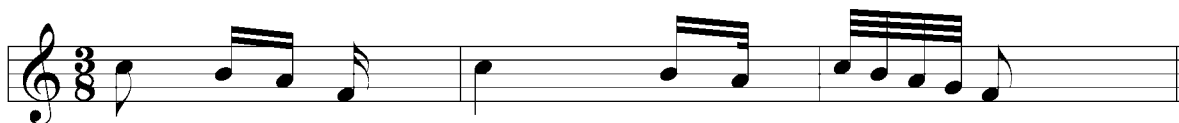
E) Place the number in order (slowest to fastest) the following words of tempo.

- | | |
|----------------|---------------|
| 1) presto | 6) allegretto |
| 2) allegro | 7) adagio |
| 3) lento | 8) largo |
| 4) larghetto | 9) andante |
| 5) prestissimo | |

F) Name the following intervals (2nd, 3rd, 4th, etc)



A) Complete the following measures by adding a note or a rest.



B) Complete the following measures by using either the thirty-second note or the sixty-fourth note.

