Name: _____

Unit: _____

Cadet Music Theory Workbook

Level Five

updated 30 Oct 2019

LEVEL 5

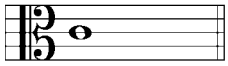
The C Clef

1. There used to be many other clefs before the Treble and Bass clefs. Only one of these other clefs now remains. It is called the C Clef and it fixes the place of the middle C. This clef used to be called UT. When it is placed on the third line, it is called the Alto Clef and is used in music written for viola and alto trombone.

2. When it is placed on the fourth line, it is called the Tenor Clef. It is used in music written for the tenor trombone, and cello. Even if you do not play either of these instruments, it is important to know how to read in the C clef.

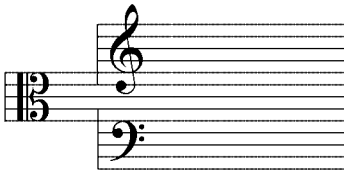
3. The clef of C fixes the place of middle C on the piano:

Alto Clef



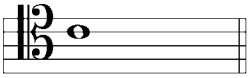
Middle C

4. This illustration shows the relative position of the three clefs mentioned on the staff.



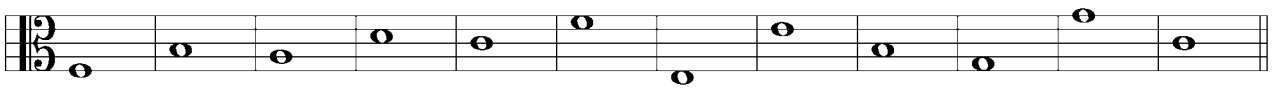
5. The most common C clef is found on the third line. The other clefs are less used but not obsolete.

Tenor Clef

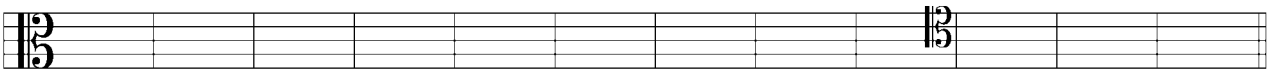


Middle C

A) Name the following notes:



B) Place the notes on the staff (L= line and S= space):



D(S) G(S) B(S) C(L) E(L) A(L) F(S) F(L) G(S) E(L) D(L)

Teaching Point 1 **Explain compound intervals.**

Time: 5 min Method: Interactive Lecture

The word compound can be defined as something being made up of two or more parts. A compound interval is an interval that is constructed using two or more simple intervals. One of the intervals in a compound interval is always an octave. Since a compound interval is constructed using an octave and at least one other interval, the numeric values of the interval is always greater than eight.

Simple interval. An interval of an octave or smaller. The numeric value of a simple interval is always eight or less.

Compound interval. An interval larger than an octave. The numeric value of a compound interval is always nine or larger.

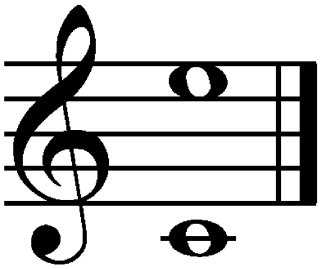


Figure 1 Compound Interval

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

In the interval (as illustrated in Figure 1), the distance between the bottom note and the top note is established by counting the number of lines and spaces between them. In this case, there are 10 lines and spaces between them. The interval is a 10^{th}.

The qualities of compound intervals follow the same pattern as the qualities of simple intervals. The following chart (as illustrated in Figure 2) details the quality of simple and compound intervals.

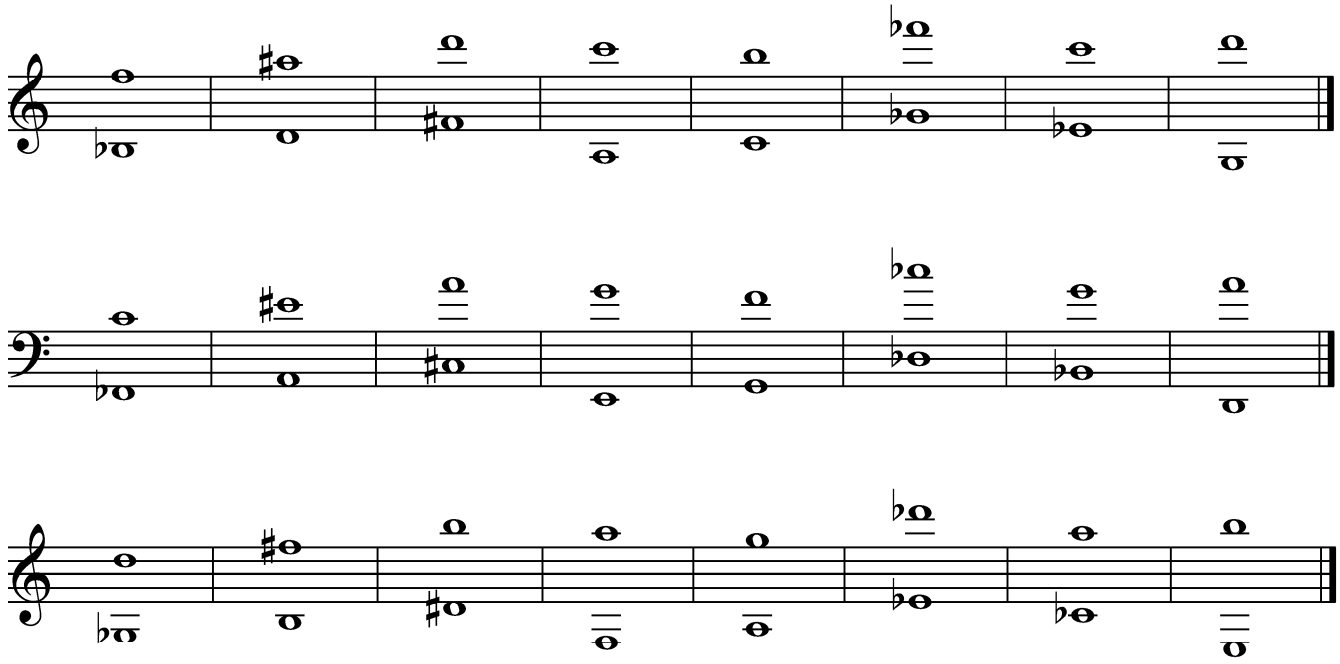
Simple Intervals		Compound Intervals			
Quality	Interval	Quality	Interval	Quality	Interval
Perfect	Unison				
major / minor	2^{nd}	major / minor	9^{th}	major / minor	16^{th}
major / minor	3^{rd}	major / minor	10^{th}	major / minor	17^{th}
Perfect	4^{th}	Perfect	11^{th}	Perfect	18^{th}
Perfect	5^{th}	Perfect	12^{th}	Perfect	19^{th}
major / minor	6^{th}	major / minor	13^{th}	major / minor	20^{th}
major / minor	7^{th}	major / minor	14^{th}	major / minor	21^{st}
Perfect	Octave / 8^{th}	Perfect	15^{th}	Perfect	22^{nd}

Figure 2 Interval Quality Chart

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

Compound Intervals

1. Identify the simple interval associated with each compound interval.

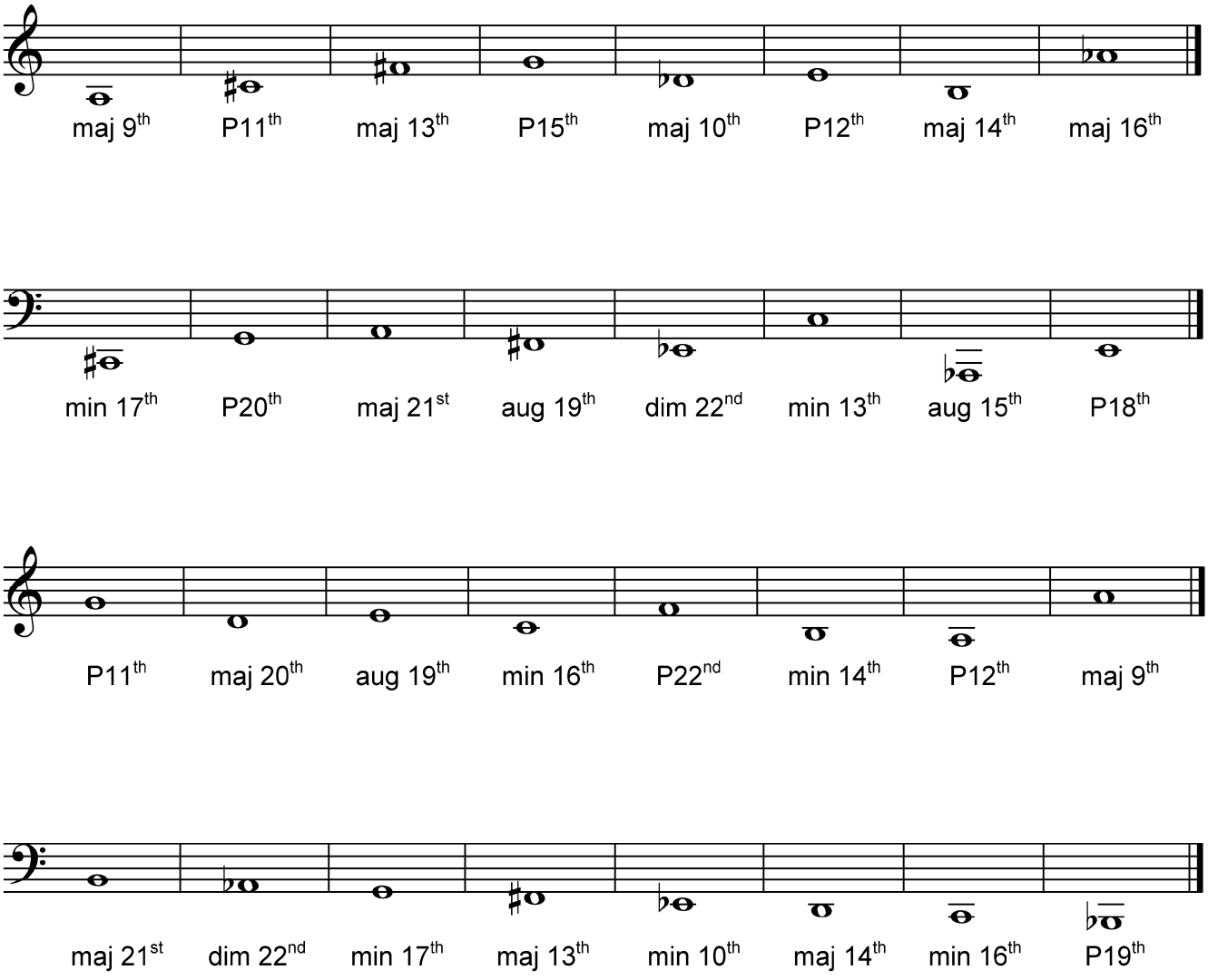


2. Complete the following chart:

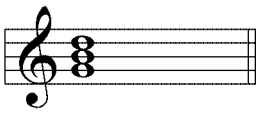
	Simple Interval	Compound Interval
a.	major 6th	
c.		minor 14th
e.	Perfect 4th	
g.	augmented 5th	
i.		minor 10th
k.		major 9th
m.	major 7th	
o.		major 10th
q.	minor 2nd	
s.		minor 13th

	Simple Interval	Compound Interval
b.	minor 2nd	
d.		augmented 12th
f.	diminished 5th	
h.		diminished 11th
j.		major 13th
l.	minor 3rd	
n.		minor 14th
p.	major 2nd	
r.	major 3rd	
t.		Perfect 15th

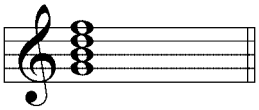
3. Write the compound interval indicated over the given note.



19. The dominant chord is only found on the 5th degree of a scale.

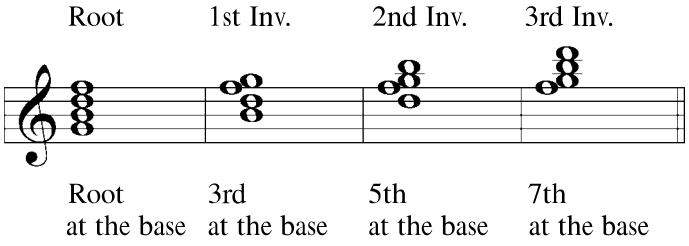
Here is the dominant of C major: 

20. The DOMINANT SEVENTH chord is a four-note chord containing the dominant major triad and the interval of a minor seventh above the root.

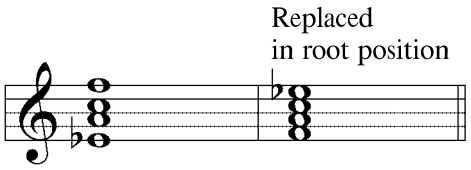
Here is the dominant seventh chord of C major: 

21. As for the three-note chord, the dominant seventh chord can also be inverted. Since there are four notes, there are three inversions. The seventh degree at the bass creates the 3rd inversion.

Here are the possible inversions:



22. To recognize the dominant seventh chord, you must place the chord in its root position. One way to write or recognize dominant seventh chords is by V7.

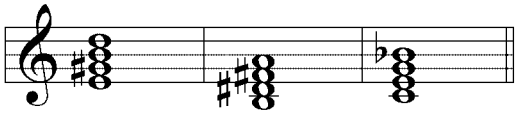


The name of this chord is F7, 3rd inversion. The 7 is named after the 7th degree.

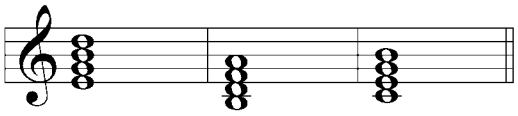
Note: *There are many ways in which you can identify the inversions of three-note and four-note chords. Should you decide to further your musical education, you will encounter all the various ways of naming chords in different styles (classical, jazz, etc.)*

23. Not every four-note chord is a dominant seventh chord. The structure of the dominant seventh has to be root, major third, and perfect fifth, and minor seventh. Anything else is something different.

Dominant Seventh Chords



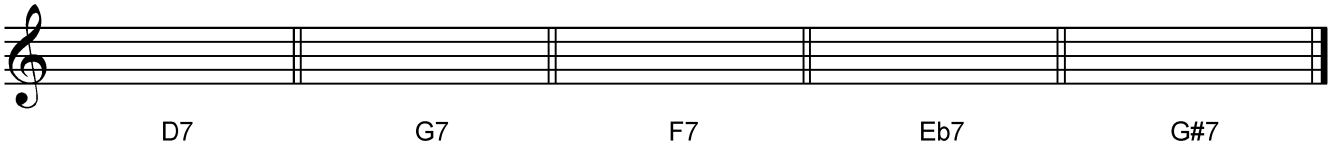
4-note chords

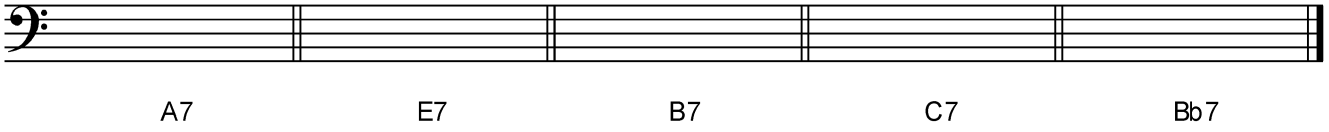


Write Chords

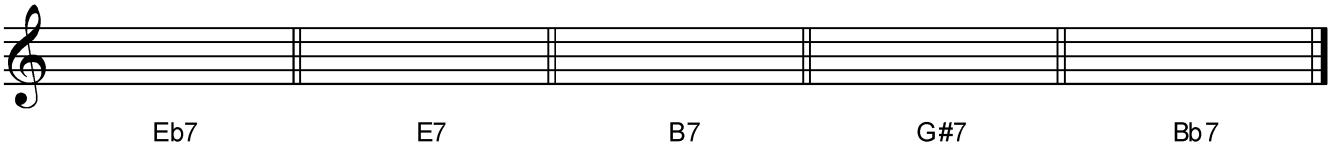
Part A

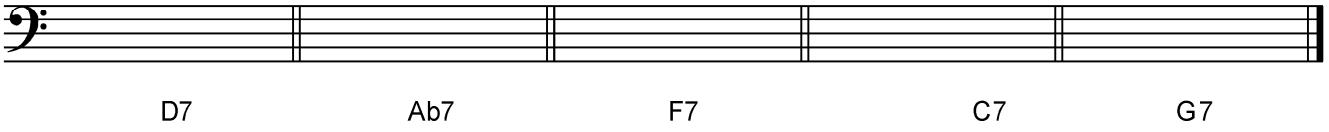
1. Write dominant seventh chords using accidentals.





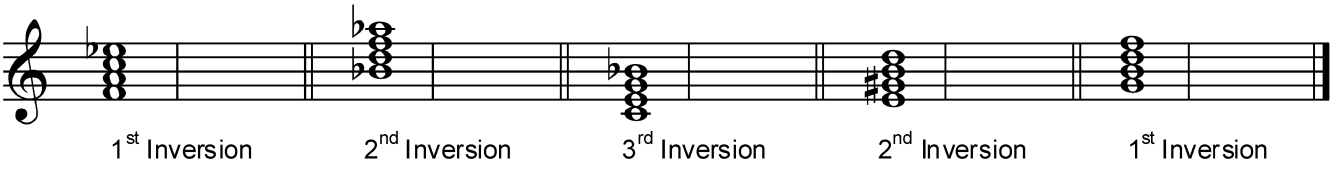
2. Write dominant seventh chords using a key signature.





Part B

3. Invert the following dominant seventh chords to the indicated inversion.



4. Write the following dominant seventh chords in the inversion indicated:

   a. The 1st inversion of the dominant 7th of D minor.

   b. The 2nd inversion of the dominant 7th of F sharp minor.

   c. The root position of the dominant 7th of B major.

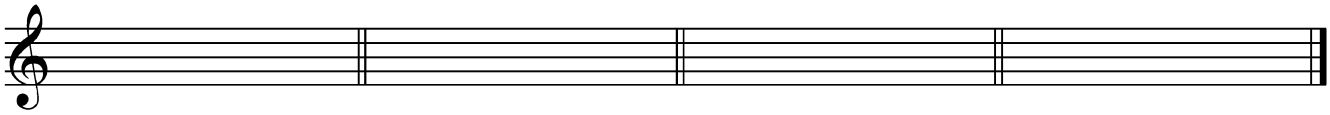
   d. A 2nd inversion D7 chord.

   e. A 3rd inversion F7 chord.

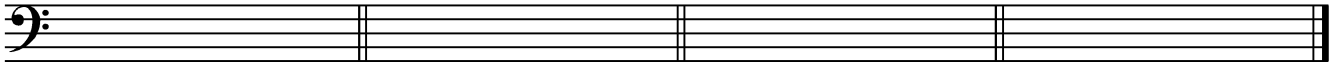
f. A root position G#7.

g. The root position of the dominant 7th of G flat major.

h. The 2nd inversion of the dominant 7th of D flat major



a. b. c. d.



e. f. g. h.

24. Up to this point, you have learned the different possibilities of transposing a melody: transposing by an octave or by changing keys. These techniques lead us to how to transpose between instruments.

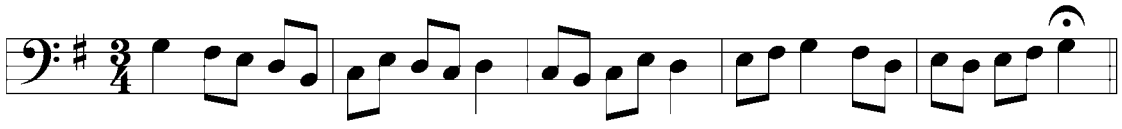
25. Due to the different sizes and different mechanisms of each instrument, the C that you know on the piano is not necessarily the same pitch for another instrument. Therefore, the musical notation for the instruments is not always indicated with the real pitch but a transposed pitch to accommodate the composition of logical fingerings.

26. If you refer to the table (to follow), you will notice the difference between the real pitch and the transposed pitch. The transposed pitch is what instrumentalists sees on their score. What comes out as sound are the notes you see in the column of the real pitch. Why is this? Because instruments come in different sizes made with different material and made with a certain logical system for appropriate fingering.

27. After you understand the function of the table, you are now ready to transpose any melody from one instrument to another by using the step-by-step method learned in Level Four.

28. Let's transpose the following melody for the tenor saxophone by using the steps fore-mentioned:

G Major



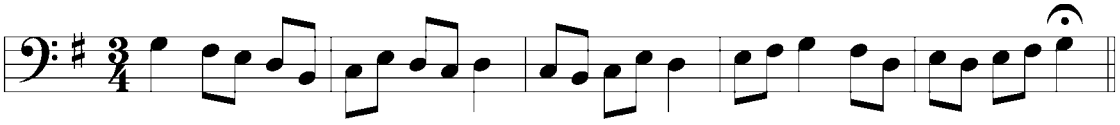
(real pitch)

Note: *You can determine the pitch of an instrument by using a precise note which is considered the natural note of the instrument. For example, B^b on the trumpet is played open (no pistons are down). This note therefore is a natural note for the trumpet. C for the trumpet is a B^b on the piano.*

1) First, by looking at the table, the melody is written is the correct register of the instrument.

2) Next, you see that you have to raise the melody by a major ninth (perfect 8ve and a major 2nd) to obtain the right pitches (sound).

A Major

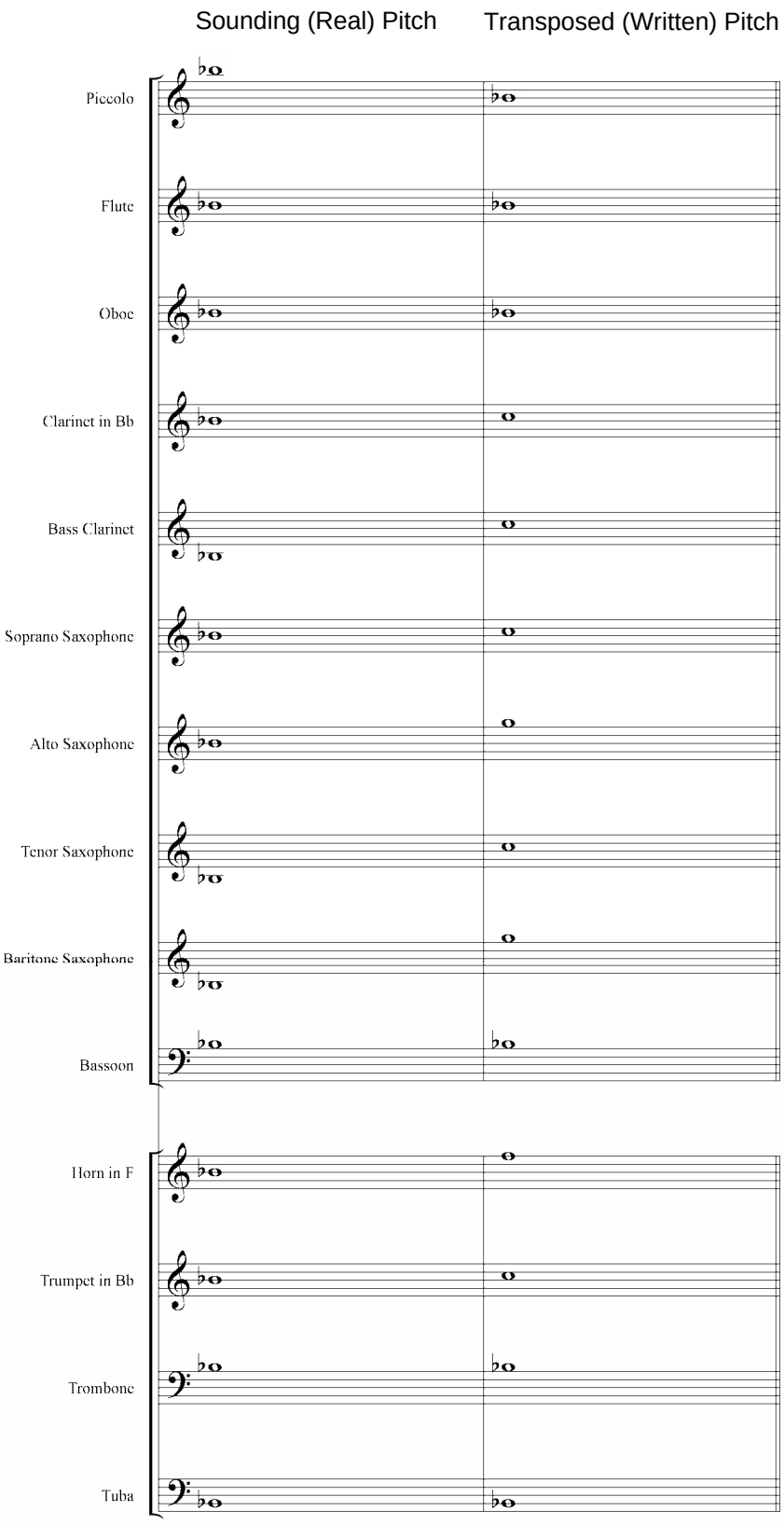


(transposed melody)

3) Finally, you have to make sure that the melody is written in the proper range and proper clef so the instrumentalist can read the music. After transposing the melody by a major ninth, you can see that the tenor saxophone always reads in the treble clef so that the pitch desired (real pitch) is heard. The tenor saxophone reads higher placed notes to achieve low-sounding notes.

Note: *It is important to take note of all the instruments registers of real pitch and transposed pitch. This demonstrates to the musician the wide range of written notes and heard notes.*

29. There exist other possible techniques of transposing between instruments. You might know one that is easier to use. However, whichever technique is used, do not short-change an interval change. For example, if you want to transpose a melody for an alto saxophone, you need to raise it by a major 6th. Do not take short cuts by transposing it a minor third lower because you will not be in the correct register. You will have to transpose it again an octave higher for the transposition to be correct.



Transposition

Lower the real pitch by a perfect octave.

No transposition needed.

No transposition needed.

Raise the real pitch by a major second.

Raise the real pitch by a major ninth (perfect 8ve + major 2nd).

Raise the real pitch by a major second.

Raise the real pitch by a major sixth.

Raise the real pitch by a major ninth (perfect 8ve + major 2nd).

Raise the real pitch by a major thirteenth (perfect 8ve + major 6th).

No transposition needed.

Raise the real pitch by a perfect fifth.

Raise the real pitch by a major second.

No transposition needed.

For the baritone treble clef, we use the same fingerings as for the trumpet, therefore we raise the real pitch by a major ninth (perfect 8ve + major 2nd).

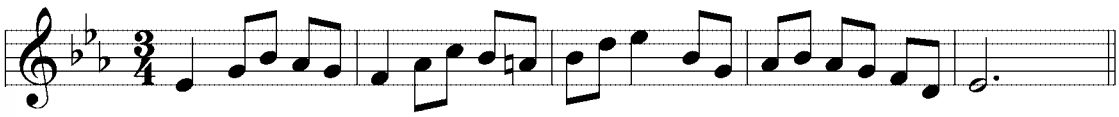
No transposition needed.

Instrument Transposition Guide

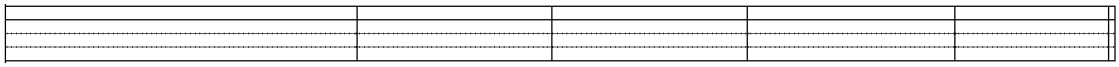
	Flute	Oboe	Clarinet	Bassoon	Alto Sax	Tenor Sax	Baritone Sax	Trumpet	French Horn	Trombone	Euphonium	Tuba	Mallet Percussion
Flute		N / A	↑ maj 2nd	↓ P8th	↓ min 3rd	↑ maj 2nd	↓ min 3rd	↑ maj 2nd	↑ P5th	↓ P8th	↓ P8th	↓ P15th	N / A
Oboe	N / A		↑ maj 2nd	↓ P8th	↓ min 3rd	↑ maj 2nd	↓ min 3rd	↑ maj 2nd	↑ P5th	↓ P8th	↓ P8th	↓ P15th	N / A
Clarinet	↓ maj 2nd	↓ maj 2nd		↓ maj 9th	↓ P4th	N / A	↓ P4th	N / A	↑ P4th	↓ maj 9th	↓ maj 9th	↓ maj 16th	↓ maj 2nd
Bassoon	↑ P8th	↑ P8th	↑ maj 9th		↑ maj 6th	↑ maj 9th	↑ maj 6th	↑ maj 9th	↑ P12th	N / A	N / A	↓ P8th	↑ P8th
Alto Sax	↑ min 3rd	↑ min 3rd	↑ P4th	↓ maj 6th		↑ P4th	N / A	↑ P4th	↑ min 7th	↓ maj 13th	↓ maj 13th	↓ maj 20th	↑ min 3rd
Tenor Sax	↓ maj 2nd	↓ maj 2nd	N / A	↓ maj 9th	↑ P4th		↓ P4th	N / A	↑ P4th	↓ maj 9th	↓ maj 9th	↓ maj 16th	↓ maj 2nd
Baritone Sax	↑ min 3rd	↑ min 3rd	↑ P4th	↓ maj 6th	N / A	↑ P4th		↑ P4th	↑ min 7th	↓ maj 13th	↓ maj 13th	↓ maj 20th	↑ min 3rd
Trumpet	↓ maj 2nd	↓ maj 2nd	N / A	↓ maj 9th	↑ P4th	N / A	↓ P4th		↑ P4th	↓ maj 9th	↓ maj 9th	↓ maj 16th	↓ maj 2nd
Frech horn	↓ P5th	↓ P5th	↓ P4th	↓ P12th	↓ min 7th	↓ P4th	↓ min 7th	↓ P4th		↓ P12th	↓ P12th	↓ P19th	↓ P5th
Trombone	↑ P8th	↑ P8th	↑ maj 9th	N / A	↑ maj 13th	↑ maj 9th	↑ maj 13th	↑ maj 9th	↑ P12th		N / A	↓ P8th	↑ P8th
Euphonium	↑ P8th	↑ P8th	↑ maj 9th	N / A	↑ maj 13th	↑ maj 9th	↑ maj 13th	↑ maj 9th	↑ P12th	N / A		↓ P8th	↑ P8th
Tuba	↑ P15th	↑ P15th	↑ maj 16th	↑ P8th	↑ maj 20th	↑ maj 16th	↑ maj 20th	↑ maj 16th	↑ P19th	↑ P8th	↑ P8th		↑ P15th
Mallet Percussion	N / A	N / A	↑ maj 2nd	↓ P8th	↓ min 3rd	↑ maj 2nd	↓ min 3rd	↑ maj 2nd	↑ P5th	↓ P8th	↓ P8th	↓ P15th	

A) Transpose the following melodies as requested:

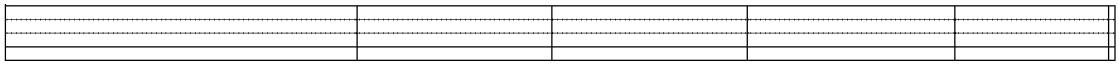
1)



For the Clarinet



For the Alto Saxophone



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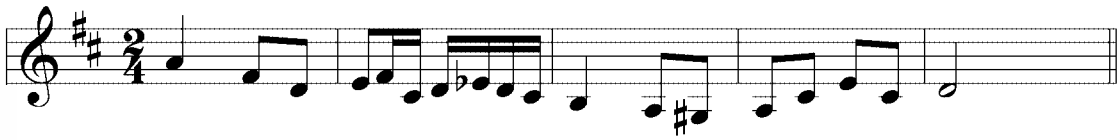
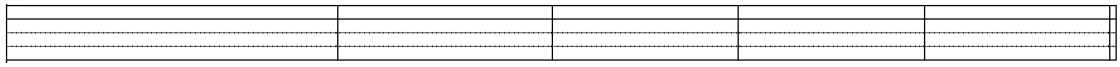
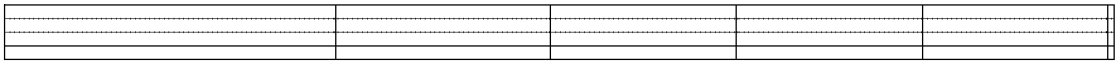


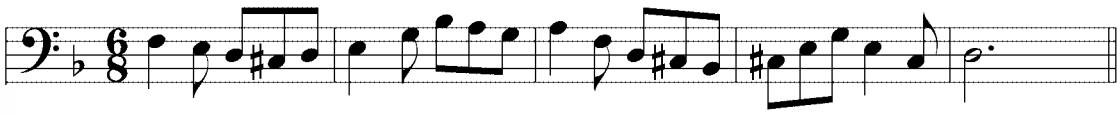
For the Trumpet



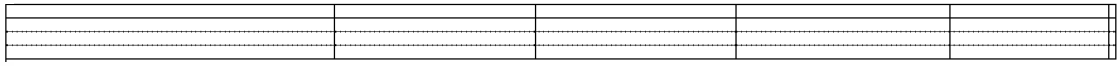
For the French Horn



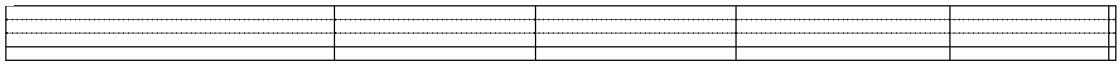
3)



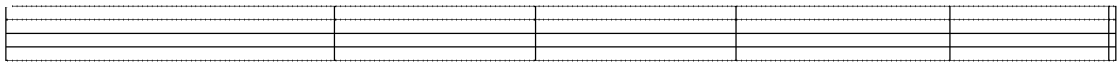
For the Tenor Saxophone



For the Baritone Saxophone



For the Bass Clarinet



Cadences

29. As you saw in Level Four, a cadence is like a musical punctuation, like that of a comma or period in language. This punctuation allows for a pause or a breath mark that in turn gives the direction to the music. A cadence is a union of 2 chords that indicate musical phrase endings.

30. You have already studied the types of cadences. Now, you will learn how to write them.

Note: *Before you learn to write the cadences, it is very important to identify them. If you have any difficulty, please refer to Level Four.*

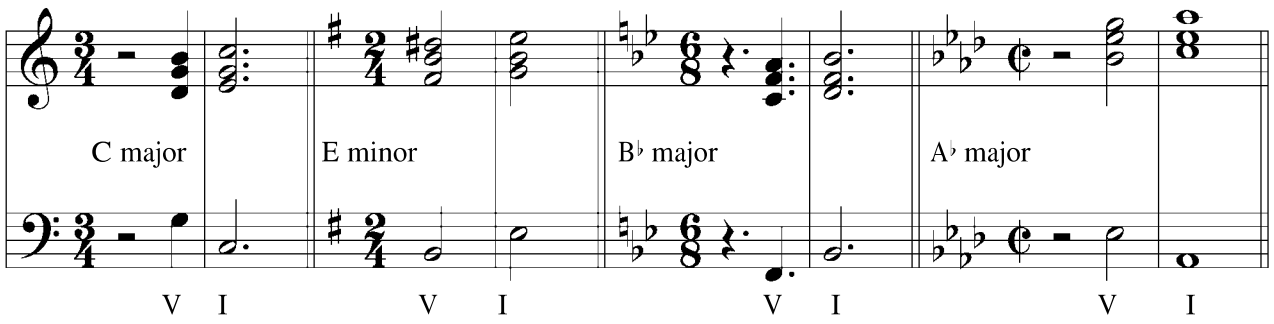
31. To write a cadence, you must follow the following steps:

a) state the key (write the key signature)
b) use the right chords of the cadence in reference with the key
c) place the lowest note (not necessarily the root) of the chord in the bass clef and then place the others on the treble clef
d) keep the common notes with the same voice
e) use a scale-like pattern for each voice

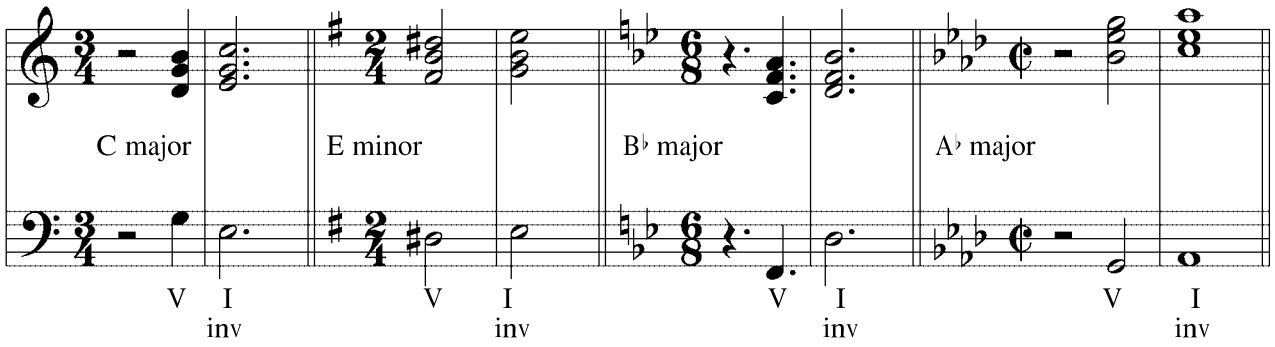
Note: *As two chords follow each other, it is important that each note of the first chord is followed by another note of the second chord. Each note is considered a voice which can be played by an instrument*

32. Following are the cadences studied in Level Four with their definition and their characteristics. Observe closely how these are written.

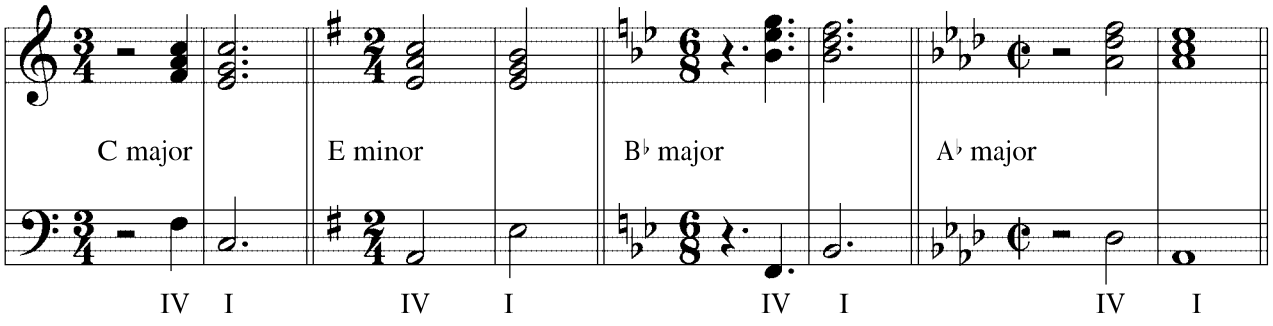
34. The PERFECT AUTHENTIC CADENCE is formed with the dominant chord followed by the tonic chord (V-I). Both Chords are in the root position (no inversion) and the root is written in the Bass Clef.



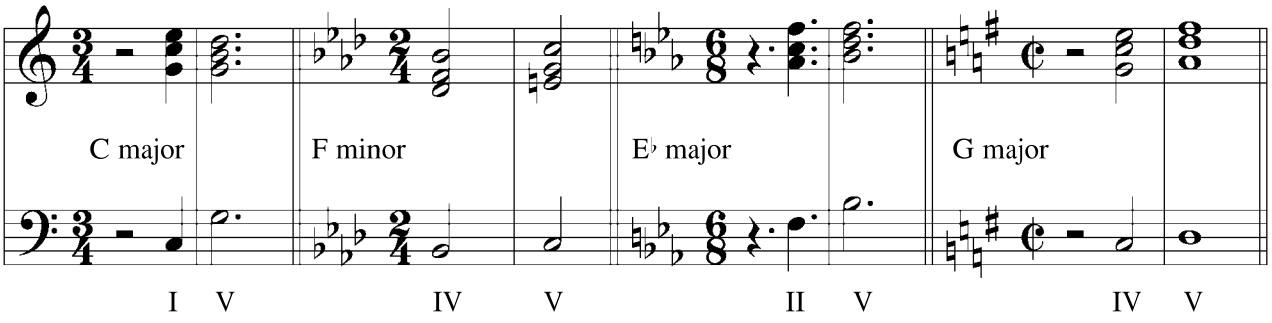
35. Once one of the two chords is in an inverted position, (usually only in 1st inversion), the cadence is then called an IMPERFECT AUTHENTIC CADENCE. This cadence, however, still is formed as V-I.



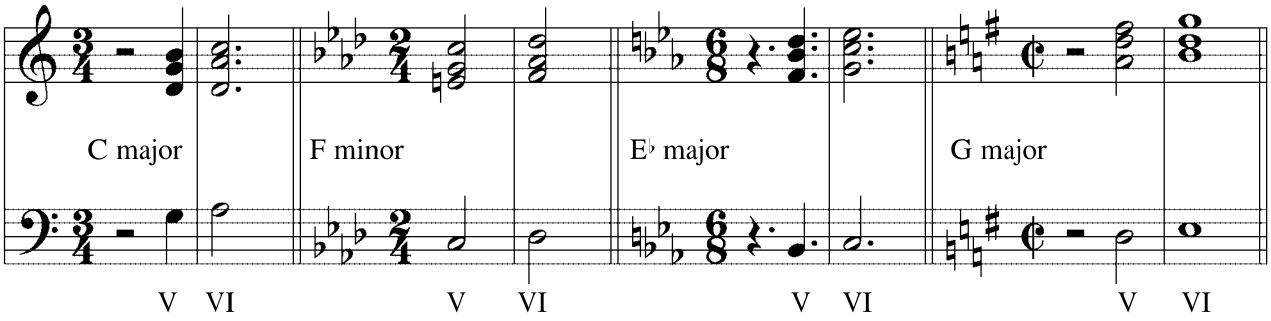
36. The PLAGAL CADENCE is formed with the sub-dominant chord followed by the tonic chord (IV-I). The chords are usually in root position.



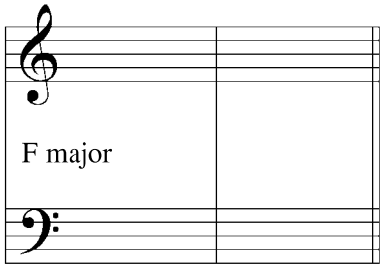
37. The dominant cadence, called HALF CADENCE, is formed with these following chords: I-V, IV-V, II-V, etc. All these chords are usually found in root position.



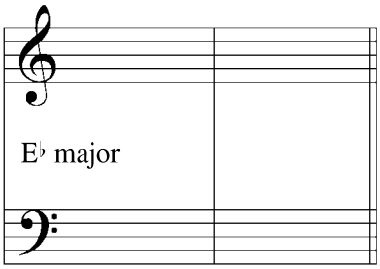
38. Finally, the DECEPTIVE CADENCE is formed with the dominant chord followed by the sub-mediant chord (V-VI). The chords are usually found in root position.



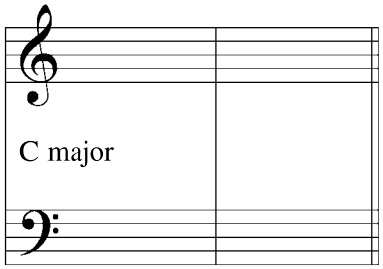
A) Complete the following cadences:



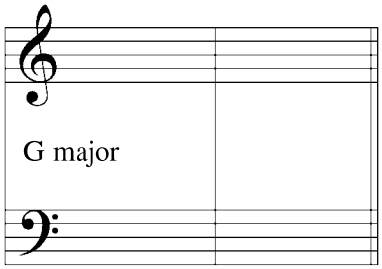
Half Cadence



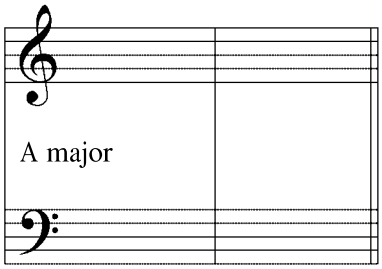
Deceptive Cadence



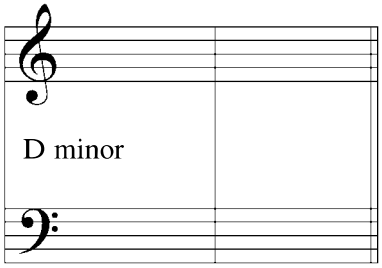
Perfect Cadence



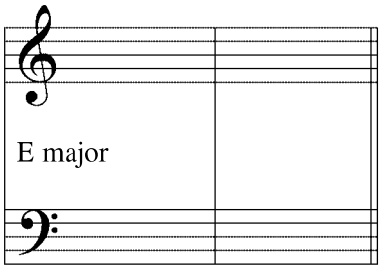
Imperfect Cadence



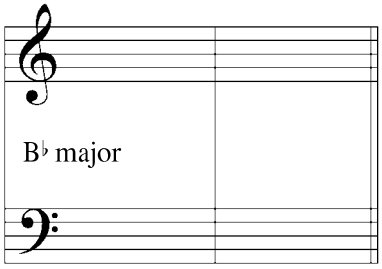
Plagal Cadence



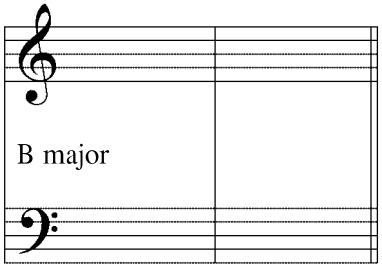
Deceptive Cadence



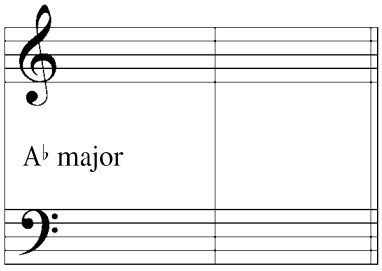
Perfect Cadence



Plagal Cadence



Half Cadence

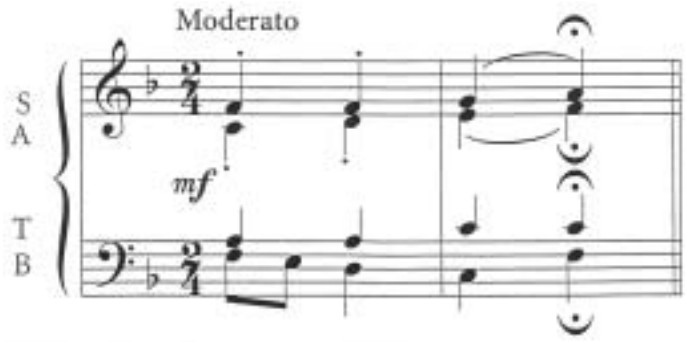


Imperfect Cadence

39. Short Score is also referred to as a compressed, condensed or close score. In vocal music, there are two ways in which the notes can be presented. Vocal music is written for a combination of voices, usually four (soprano, alto, tenor and bass) but can be written for more.

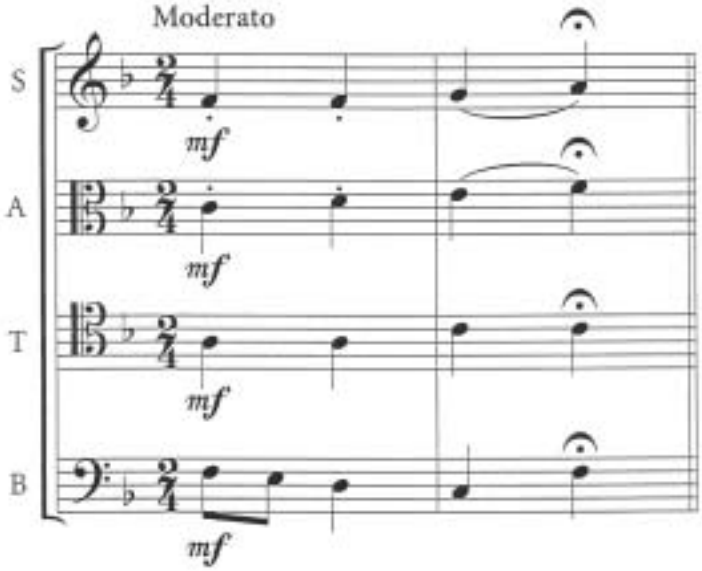
40. The soprano and alto parts are written in the treble clef, while the tenor and bass parts are written in the bass clef. The stems for soprano and tenor go up and the stems for the alto and bass go down.

This example is written in short or close score:

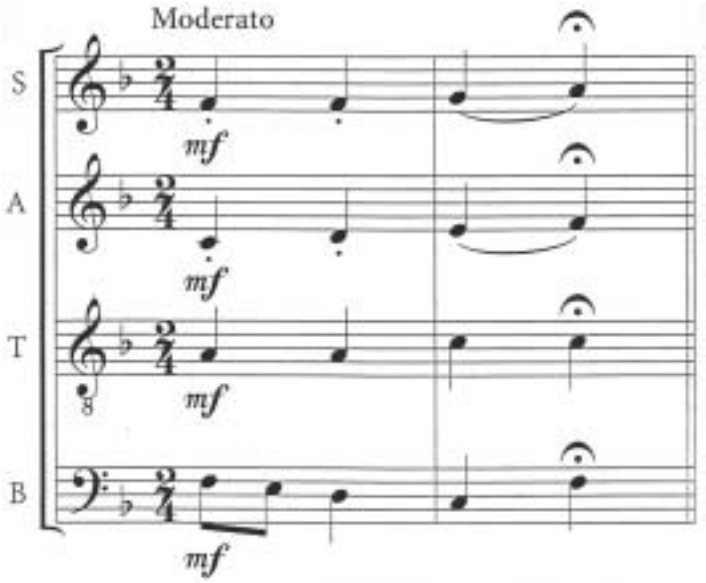


41. Open Score refers to a score where each of the four voices is written on its own staff. The old form has each voice written in its own clef (the alto and tenor clef using the C clefs).

This is the same passage written in vocal score with C clefs.



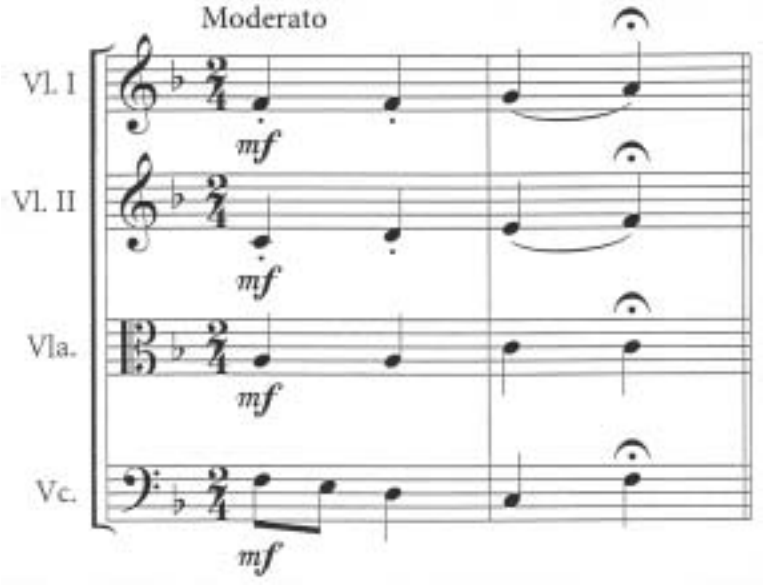
Here is the same passage written in modern vocal score.



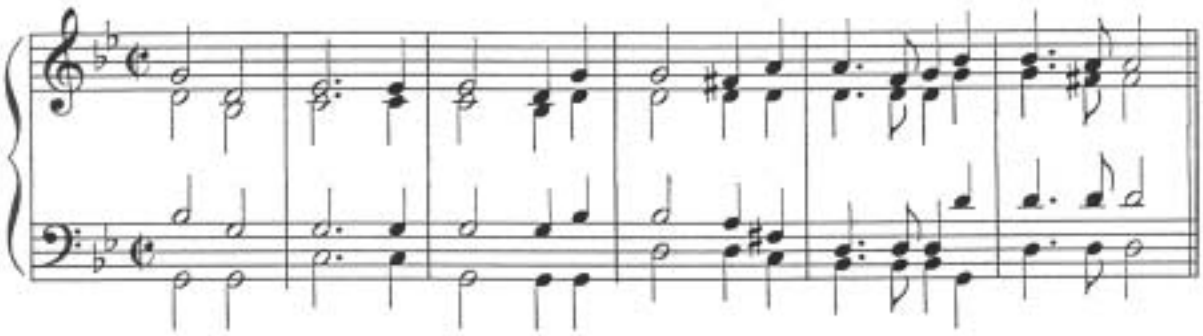
Music written for String Quartet also has four staves. Instrumentation is as follows: first violin, second violin, viola and cello.

Note: *The viola is written in the Alto clef.*

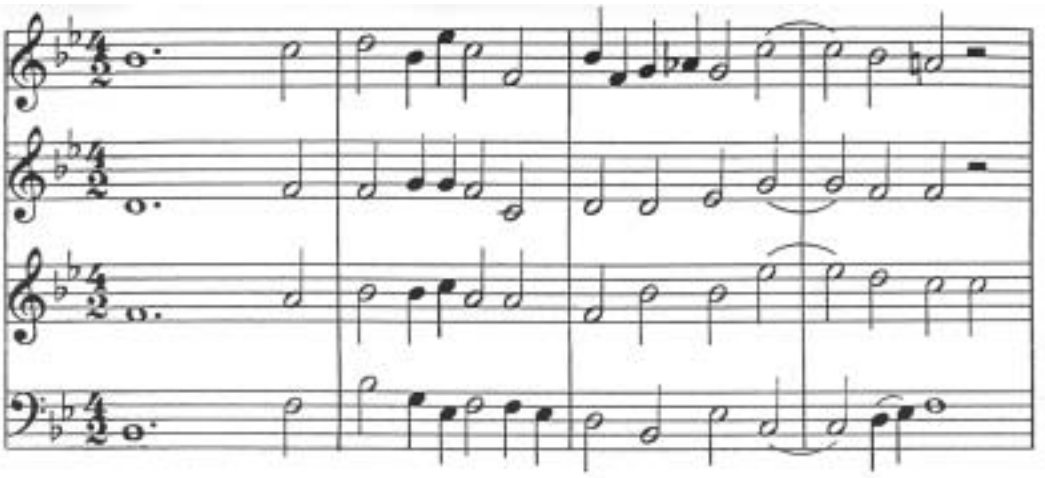
Here is, again, the same passage written in string quartet score.



A) Write the following passage in open score for string quartet.



B) Write the following passage in short (condensed) score.



Music Symbols and Terms Definitions

Alto clef. A type of C clef. The clef is centred on the middle line of the staff and the centre of the clef indicates middle C. The alto clef is used for instruments such as the viola and the alto trombone. The alto clef is very similar to the tenor clef.

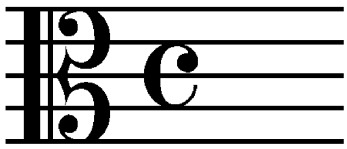


Figure A-1 The Alto Clef

Note. Created by Director Cadets 3, 2004, Ottawa, ON: Department of National Defence.

Tenor clef. A type of C clef. The clef is centred on the fourth line of the staff and the centre of the clef indicates middle C. The tenor clef is used for instruments such as tenor trombone, bassoon, and cello.

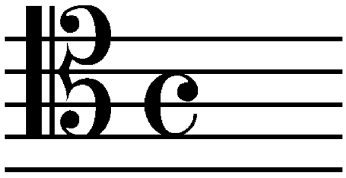


Figure A-2 The Tenor Clef

Note. Created by Director Cadets 3, 2004, Ottawa, ON: Department of National Defence.

Andantino. A tempo marking defined as being a little faster than andante.

Larghetto. A tempo marking defined as being less slow than largo.

Prestissimo. A tempo marking defined as being as fast as possible.

Rallentando (rall.). Slow the tempo down gradually. Often rallentando is abbreviated to rall.

Tempo primo (tempo I). Return to the original tempo. Often tempo primo is abbreviated to tempo I.

Allargando (allarg.). Broaden the sound and slow the tempo of the music. Often allargando is abbreviated to allarg.

Assai. Very. Assai is used in conjunction with other music terms (eg, assai allargando or assai rallentando).

Bene (ben). Well. Sometimes written as ben depending on its use. Bene is used in conjunction with other music terms (eg, ben marcato).

Colla (col, coll', colle). With the. Sometimes written as col, coll', or colle, depending on its use. Colla is used in conjunction with other music terms (eg, colla voce).

Ed (e). And. Sometimes written as e. Ed is used in conjunction with other music terms (eg, lento e largamente).

Loco. Place; return to the written register. Loco is used after an 8^{va} or 8^{vb} to have the musician return to playing the notes as written.

Senza. Without. Senza is used in conjunction with other music terms (eg, Presto senza marcato).

Metronome marking (M.M.). Tempo marking. Indicates the number of beats that occur per minute. A M.M. quarter note = 60 would indicate that there are 60 beats per minute. M.M. is the abbreviation for Maelzel's Metronome; an instrument used to beat time.

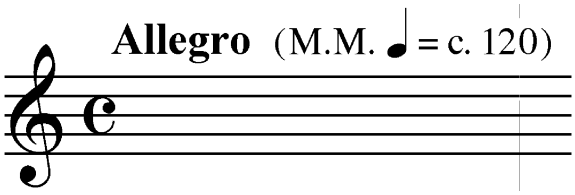


Figure A-3 Metronome Marking

Note. Created by Director Cadets 3, 2004, Ottawa, ON: Department of National Defence.