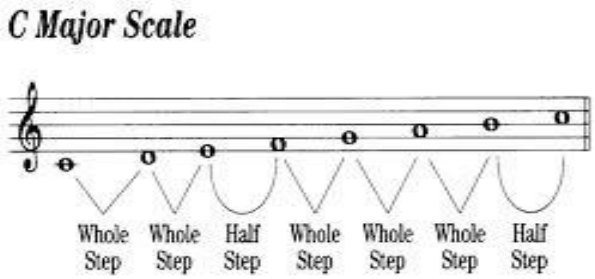
Lesson four: Major and Minor Scales

Half step—the shortest interval traditionally used in Western music, represented by two adjacent keys on the piano (e.g., B—C, D—Eb, F—F#, etc.).

Whole step—the combination of two half steps (e.g., G—A, B—C#, D—E, G#—A#).

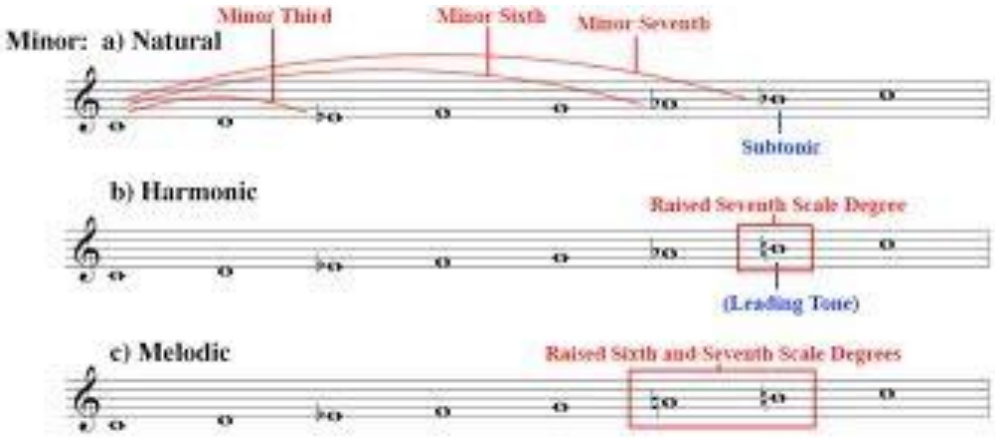
Major scale—a series of seven consecutive letter-name pitches found diatonically in its major key with a pattern of whole steps and half steps as follows: W W H W W W H.



Natural minor scale—a series of seven consecutive letter-name pitches found diatonically in its minor key with a pattern of whole steps and half steps as follows: W H W W H W W.

Harmonic minor scale—a natural minor scale with the seventh scale degree raised one half step. Note that this scale creates the interval of an augmented 2nd between the 6th & 7th scale degrees.

Melodic minor scale—a natural minor scale with the sixth and seventh scale degrees raised one half step in the ascending part of the scale, and a return (or re-lowering of the sixth and seventh scale degrees one half step) of the natural minor scale in the descending part of the scale.



While it is possible to spell all the major and minor scales using the patterns shown above, it is much more efficient (and easier) to use the key signatures that you memorized in the previous lesson. Here are some examples of how this would work:

To spell an E major scale:

1) Write all the alphabet letters through one octave starting with an E on the staff using whatever clef is requested as follows: E, F, G, A, B, C, D, E.

2) Apply (plug in) all the sharps or flats of the requested scale in front of all notes that apply. Since there are 4 sharps in the key of E major (F#, C#, G#, D#), place these four sharps in front of the corresponding pitches as follows: E, F#, G#, A, B, C#, D#, E. Notice that this answer illustrates the W W H W W W H major scale pattern.

To spell an e natural minor scale:

1) Write all the alphabet letters through one octave starting with an E on the staff using whatever clef is requested as follows: E, F, G, A, B, C, D, E.
2) Apply (plug in) all the sharps or flats of the requested scale in front of all notes that apply. Since there is 1 sharp in the key of E minor (F#), place that sharp in front of the corresponding pitch as follows: E, F#, G, A, B, C, D, E. Notice that this answer illustrates the W H W W H W W natural minor scale pattern.

To spell an e harmonic minor scale:

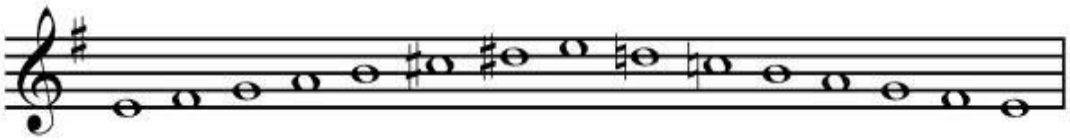
1) Write all the alphabet letters through one octave starting with an E on the staff using whatever clef is requested as follows: E, F, G, A, B, C, D, E.
2) Spell an e natural minor scale as shown above: E, F#, G, A, B, C, D, E
3) Raise the 7th scale degree by changing D to a D# as follows: E, F#, G, A, B, C, D#, E.

Note: Each letter of the alphabet must be represented, so be careful not to use enharmonic pitches that represent the same alphabet letter. For example, in e harmonic minor, you should use a D# for the 7th scale degree rather than an Eb, otherwise there would be no alphabet letter

represented for the letter D (e.g., E, F#, G, A, B, C, D#, E is correct and E, F#, G, A, B, C, Eb, E is incorrect).

To spell an e melodic minor scale:

1) Write all the alphabet letters through one octave starting with an E on the staff using whatever clef is requested as follows: E, F, G, A, B, C, D, E.
2) Spell an e natural minor scale as shown above: E, F#, G, A, B, C, D, E
3) Raise both the 6th and 7th scale degree by changing C to C# and D to a D# as follows: E, F#, G, A, B, C#, D#, E for the ascending part of the scale, and return the C# and D# back to its natural minor form as a C and D for the descending part of the scale:

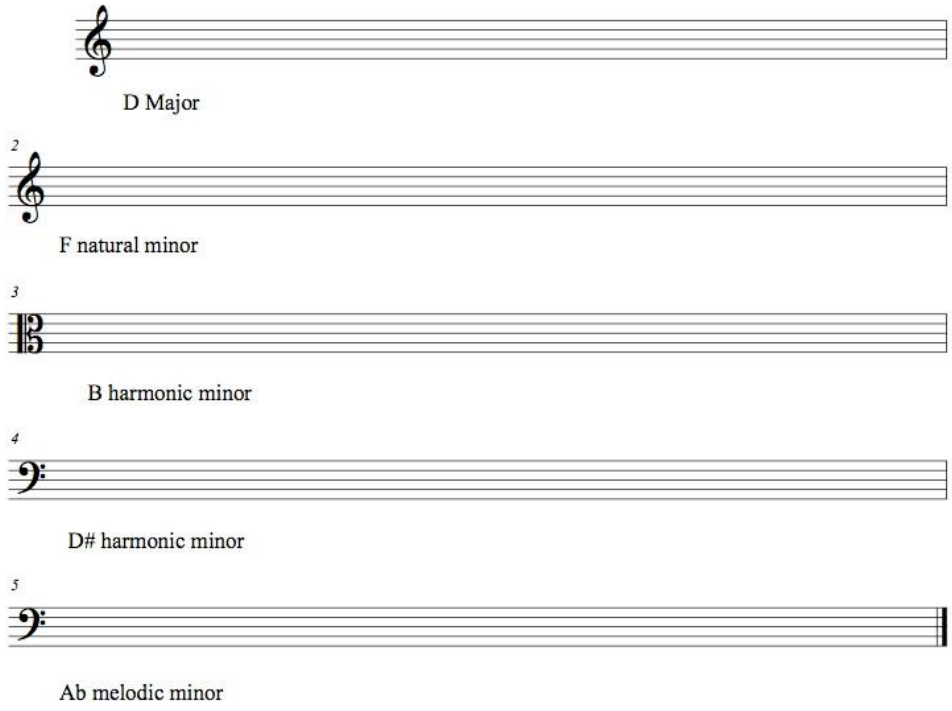


Lesson four: Major and Minor Scales

Practice Questions

1) Spell the following requested scales without writing in the key signature by adding in the appropriate accidentals:

Note: Be sure to write both the ascending and descending form of the melodic minor scale. All other scales can be spelled with just the ascending form.



2) Write in the missing pitches in the blanks provided for the following requested scales:

F# Major: F# G# _____ B C# D# _____ F#

Eb harmonic minor: Eb F _____ Ab Bb Cb _____ Eb

Ab Major: Ab Bb C _____ Eb F _____ Ab

B melodic minor: B _____ D E F# _____ A# B _____ G F# E D _____ B G# natural minor: G# _____ B C# _____ E F# G#

3) What is the 6th scale degree of a B Major scale? _____

4) What is the 3rd scale degree of a c# natural minor scale? _____

5) What is the 7th scale degree of an f# harmonic minor scale? _____

6) What is the ascending 6th scale degree of a c melodic minor scale? _____

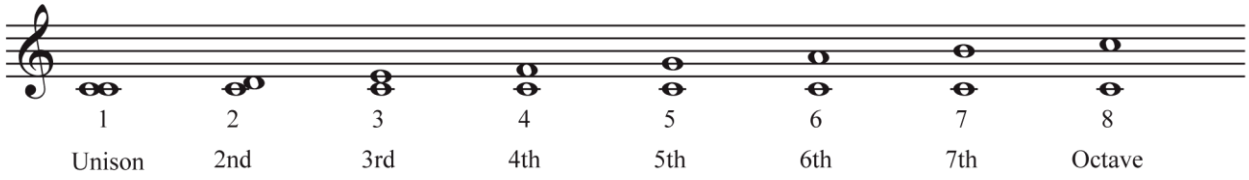
7) What is the descending 7th scale degree of a g melodic minor scale? _____

Lesson Five: Intervals

Interval—term used to measure the distance between two pitches. Each interval is comprised of two parts—the interval quality and the interval size.

Interval quality—describes the quality of the interval with the following descriptions: **perfect** (P), **major** (M), **minor** (m), diminished (o), and **augmented** (+).

Interval size—describes the size of the interval which is measured by how far apart the notes are on the staff with the following numbers: **unisons**, **seconds**, **thirds**, **fourths**, **fifths**, **sixths**, **sevenths**, and **octaves**.



Melodic intervals—the distance measured horizontally between any two adjacent pitches.

Harmonic intervals—the distance measured vertically between any two simultaneously sounding pitches.

Simple intervals—intervals that are smaller than an octave (including the octave).

Compound intervals—intervals that are larger than an octave (e.g., m9 is a m2 plus an octave, M10 is a M3 plus an octave, P11 is a P4 plus an octave, etc.)

The term perfect (abbreviated P) is only used for unisons, 4ths, 5ths, and octaves (and their compound intervals) as follows: P1, P4, P5, and P8. (P is NEVER used to describe 2nds, 3rds, 6ths, or 7ths)

The term major (abbreviated M) or minor (abbreviated m) is only used for 2nds, 3rds, 6ths, and 7ths (and their compound intervals) as follows: M2, m2, M3, m3, M6, m6, M7, m7. (M and m are NEVER used to describe unisons, 4ths, 5ths, or octaves)

The term augmented (abbreviated +) is used when a perfect or major interval is raised a half step without changing the numerical name as follows: P1 ➔➔ +1 (C—C#), M2 ➔➔ +2 (C— D#), M3 ➔➔ +3 (C—E#), P4 ➔➔ +4 (C—F#), P5 ➔➔ +5 (C—G#), M6 ➔➔ +6 (C—A#), M7 ➔➔ +7(C—B#), P8 ➔➔ +8 (C—C#).

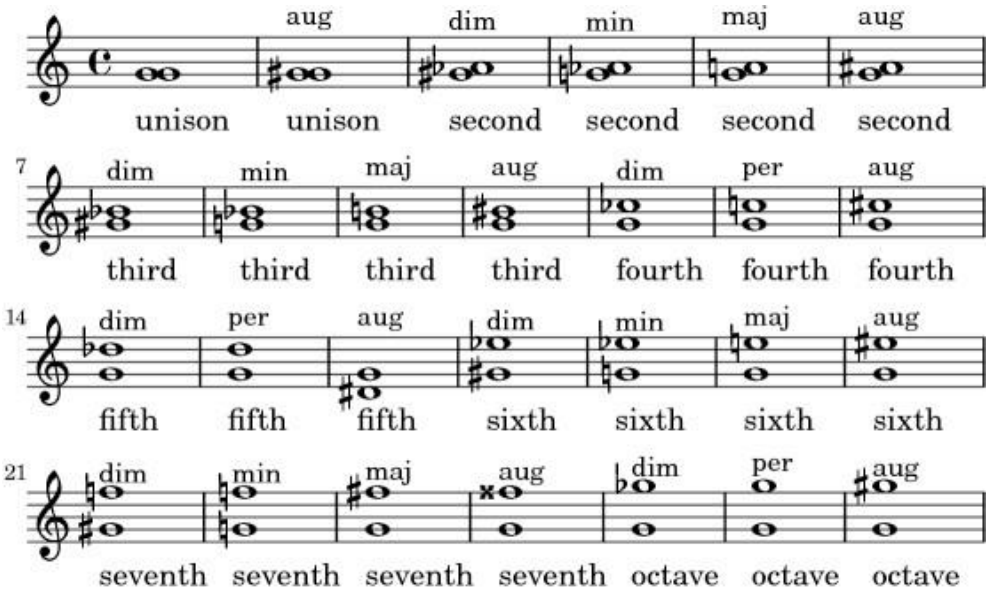
NOTE: If a minor interval is raised a half step it just becomes a major interval, not an augmented interval.

The term diminished (abbreviated o) is used when a perfect or minor interval is lowered a half step without changing the numerical name as follows: m2 ➔➔ o2 (C—Dbb), m3 ➔➔ o3 (C—Ebb), P4 ➔➔ o4 (C—Fb), P5 ➔➔ o5 (C—Gb), o6 (C—Abb), o7 (C—Bbb), P8 ➔➔ o8 (C—Cb).

NOTE: If a major interval is lowered a half step it just becomes a minor interval, not a diminished interval.

One easy way to identify intervals is to relate them to the intervals found in the major scale, specifically the intervals from the first scale degree up to the other scale degrees.

You should learn to convert inverals by raising and lowering them to form smaller or larger intervals. The following chart shows the hierachy of the major and minor intervals from smallest to largest—going from diminished to minor to major to augmented for the 2nds, 3rds, 6ths, and 7ths., and the hierachy of the perfect intervals from smallest to largest— going from diminished to perfect to augmented for the unisons, 4ths, 5ths, and octaves.



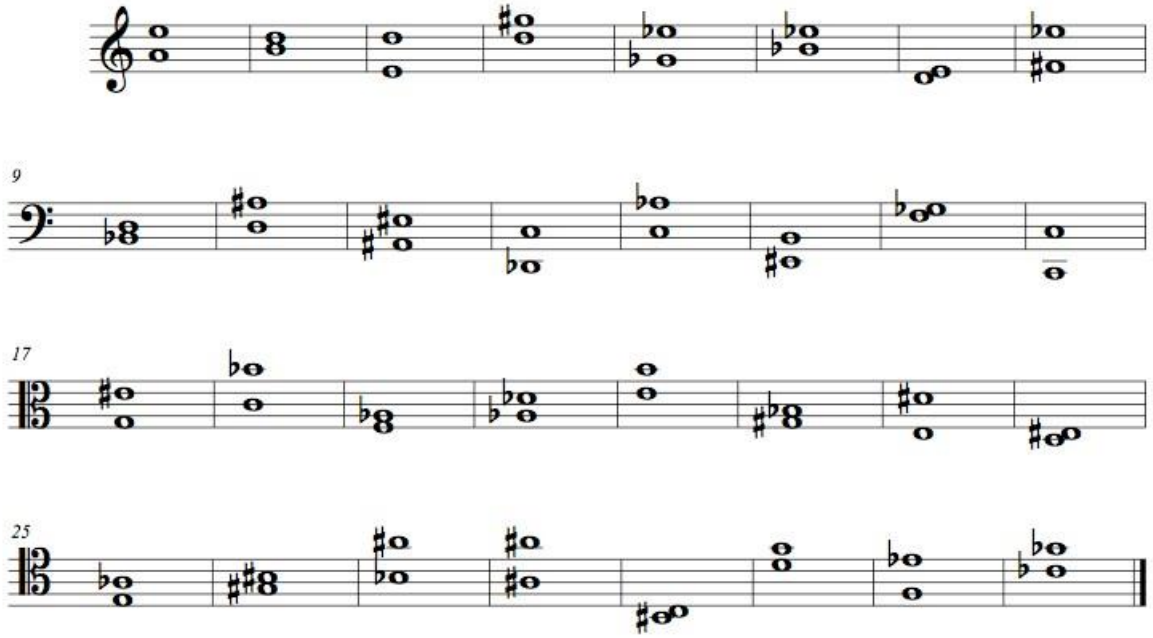
Notice how that many intervals have a different name, but produce the same sound, for example, a M3 and a o4 have the same sound but are spelled differently. It is important to remember the size of the interval reflects how many pitch letter names it contains, so G to B must be some type of third because it contains 3 pitch letter names (G, A, and B), whereas G to Cb must be some type of fourth because it contains 4 pitches letter names (G, A, B, and C). Therefore, the interval G to Cb would be incorrectly labeled as a M3 even though Cb is the same pitch as B—it must be correctly labeled as a diminished 4th.

NOTE: Calculating intervals by counting half steps and/or whole steps is sometimes easier and faster, but is more often time consuming and has a greater likelihood of producing errors.

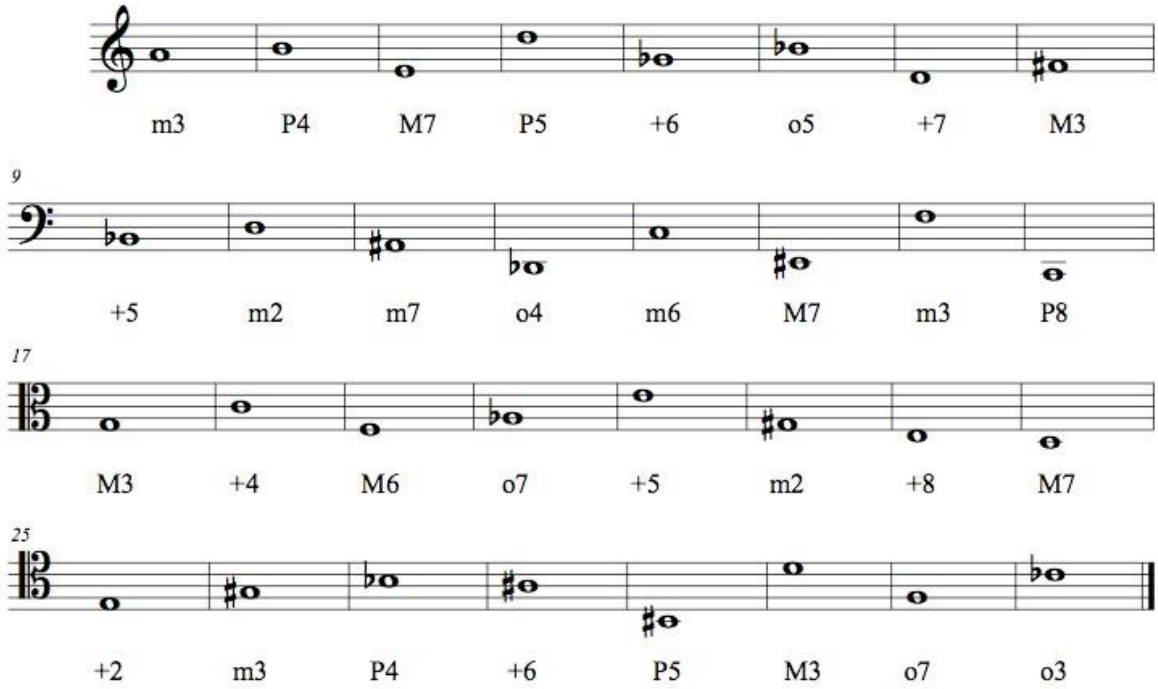
Lesson Five: Intervals

Practice Questions

1) Identify each interval with the correct quality and size. (e.g., P4, M3, m6, +5, o7, etc.)



2) Write the requested intervals above the given pitches with the correct quality and size.



Lesson six: Chords (Arpeggios)

Chord—a group of notes sounding simultaneously (block chord) or in close succession (broken chord or *arpeggio*)

Major triad—a chord consisting of three different pitches that comprise the first, third and fifth scale degrees of a major scale. It is comprised of major 3rd and a minor 3rd.

Minor triad—a chord consisting of three different pitches that comprise the first, third, and fifth scale degrees of a minor scale. It is comprised of a minor 3rd and a major 3rd.

Diminished triad—a minor triad that has the fifth of the chord lowered by one half step. It is comprised of two minor thirds.

Augmented triad—a major triad that has the fifth of the chord raised by one half step. It is comprised of two major thirds.

One of the easiest ways to spell any triad is to 1) memorize the quality of the chords that are used in the C Major scale and 2) be able to convert any triad to a different triad.

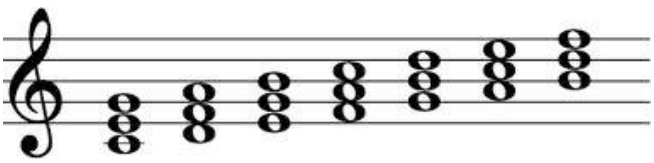
Chord qualities in the C major scale:

The triads built on scale degrees 1, 4 and 5 are major.

The triads built on scale degrees 2, 3, and 6 are minor.

The triad built on scale degree 7 is diminished.

Therefore, every triad that starts on a the letters C, F, or G will always result in a major triad if all accidentals are the same, and every chord that starts on the letters D, E, or A will always result in a minor triad if all accidentals are the same, and every chord that starts on the letter B will always result in a diminished triad if all accidentals are the same.



1	2	3	4	5	6	7
M	m	m	M	M	m	o

Examples:

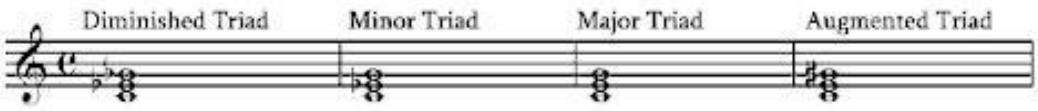
If you want to spell a major triad starting on the pitch C#, then keep all the accidentals the same, and you will produce a C# major triad—C#, E#, G#.

If you want to spell a minor triad starting on the pitch Eb, then keep all the accidentals the same, and you will produce an Eb minor triad—Eb, Gb, Bb.

If you want to spell a diminished triad starting on the pitch Bb, then keep all the accidentals the same, and you will produce a Bb diminished triad—Bb, Db, Fb.

Converting triads to different triads:

You will be able to convert triads by knowing the differences between each triad. An augmented triad is a major triad with the 5th of the chord raised a half step. A diminished triad is a minor triad with the 5th of the chord lowered a half step. A minor triad is a major triad with the 3rd of the chord lowered a half step, and conversely a major triad is a minor triad with the 3rd of the chord raised a half step.



So what happens if you want to spell a major triad using this system, but you are asked to start on the pitch Db? You will need to first spell the chord as a minor triad and then convert that minor triad to a major triad. So if you want to spell a Db major triad, then you would first spell a Db minor triad by starting on a Db and keeping all the accidentals the same for each of the other triad pitches—Db, Fb, Ab. Then you would need to convert that minor triad to a major triad by raising the 3rd of the chord a half step from an Fb to an F, which would then produce the desired major triad starting on a Db—Db, F, Ab.

While you certainly can spell all your triads by using your major and minor key signatures that you have learned, this system will prove to be helpful when you want to spell triads on pitches that do not have major or minor key signatures—for example, if you wanted to spell a G# major triad, you could not use the G# major key signature since it does not exist. It would be very easy to produce the answer G#, B#, D# without using any key signatures, since you learned that any triad that begins on the pitch G that has all accidentals the same will produce a major triad.

Also, you will find this system helpful when you want to spell tricky triads, but are not given the tonic note—for example, if you were asked to spell an augmented triad and were given the pitch D# as the 3rd of the chord, then you could approach the problem like this:

1) write in the chord letter names using the same accidentals as the given pitch, so you would write B#, D#, F# and notice that this yields a diminished triad since it begins on the pitch B.

2) convert this diminished triad to a minor triad by raising the 5th of the chord F# to an Fx.

3) convert this minor triad to a major triad by raising the 3rd of the chord, but since that is the given pitch (which you are not allowed to change), then you must lower the surrounding pitches B# to a B and the Fx to an F#.

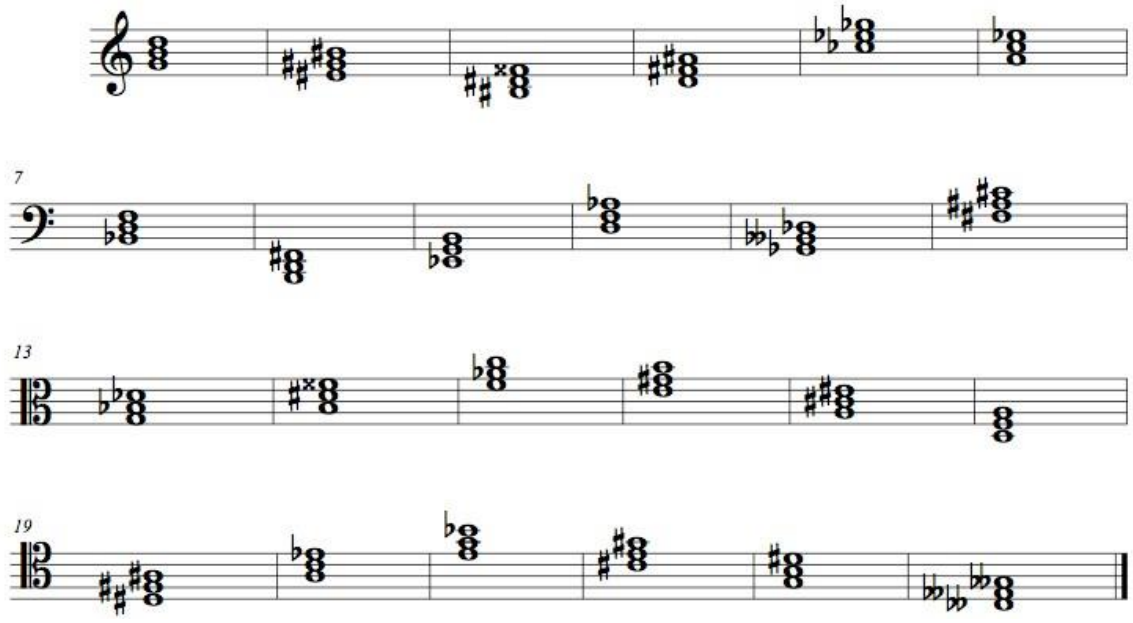
4) convert this major triad to an augmented triad by raising the 5th of the chord F# to an Fx.

Now you have produced an augmented triad of B, D#, Fx when you were only given the 3rd of the triad. This may seem tricky at first, but with practice it will become an invaluable tool to you.

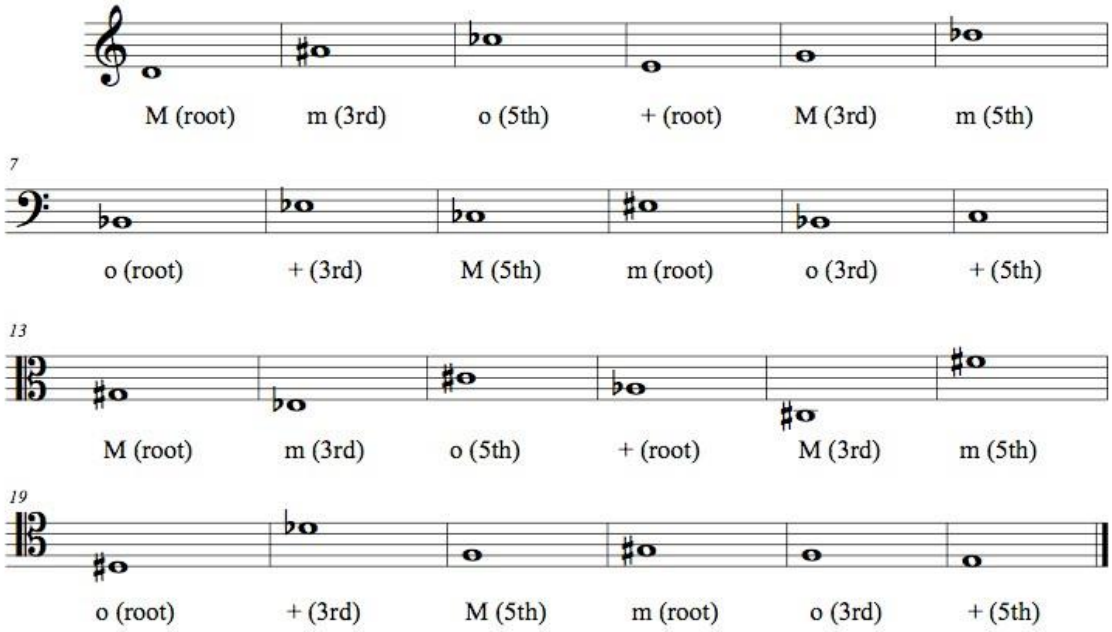
Lesson six: Chords (Arpeggios)

Practice Questions

1) Using the symbols M, m, o, and +, identify each triad as either major (M), minor (m), diminished (o), or augmented (+).



2) Spell each requested chord on the staff using accidentals when necessary. Be careful to observe which note you are given—it will be labeled as the root, 3rd, or 5th of the chord.


M (root)
m (3rd)
o (5th)
+ (root)
M (3rd)
m (5th)
7
o (root)
+ (3rd)
M (5th)
m (root)
o (3rd)
+ (5th)
13
M (root)
m (3rd)
o (5th)
+ (root)
M (3rd)
m (5th)
19
o (root)
+ (3rd)
M (5th)
m (root)
o (3rd)
+ (5th)