

10th Grade
Music – Choir I: Diatonic Chords
in Major and Minor Keys

April 27 – May 1

Time Allotment: 20 minutes per day

Student Name: _____

Teacher Name: _____

Academic Honesty

I certify that I completed this assignment
independently in accordance with the GHNO
Academy Honor Code.

Student signature:

I certify that my student completed this
assignment independently in accordance with
the GHNO Academy Honor Code.

Parent signature:

Packet Overview

Date	Objective(s)	Page Number
Monday, April 27	1. Review minor scale forms and derive the composite minor scale	3
Tuesday, April 28	1. Derive diatonic triads in major	6
Wednesday, April 29	1. Derive diatonic triads in composite minor	8
Thursday, April 30	1. Practice identifying triads in keys with Roman numerals	10
Friday, May 1	1. Demonstrate understanding of diatonic triad identification by taking a written assessment.	12

Additional Notes: In order to complete the tasks within the following packet, it would be helpful for students to have a piece of manuscript paper to write out triads; I have included a blank sheet of manuscript paper to be printed off as needed, though in the event that this is not feasible students are free to use lined paper to hand draw a music staff.

I have also included answer keys to the exercises at the end of the packet. Parents, please facilitate the proper use of these answer documents (i.e. have students work through the exercises for each day before supplying the answers so that they can self-check for comprehension.)

As always, will be available to provide support via email, and I will be checking my inbox regularly. Please do not hesitate to reach out with questions or concerns during this time. For your reference my email is kevin.austin@greatheartsnorthernoaks.org

I will also be holding guided instruction hours from now on via Zoom according to the following schedule:

2 nd Period	Monday, Wednesday; 11:00 – 11:50am
5 th Period	Tuesday, Thursday; 11:00 – 11:50am

These Zoom meetings are optional and will allow for much needed conversations to discuss theory problems and ask questions.

To join the Zoom Meeting:

<https://zoom.us/j/209631093?pwd=Z0MvSU9BNXl0QjRDc1U3U0o5VkJkUT09>

Meeting ID: 209 631 093

Password: 004074

Monday, April 27

Music Theory Unit: Diatonic Chords in Major and Minor Keys
Lesson 1: The Problem of Minor Scales

Unit Overview: Diatonic Chords in Major and Minor Keys

Now that we have presented the four triad types, and the five common seventh chord types, we can begin to look at how they are used in tonal music, which is really the focus of what these last five weeks have been about. Most chords in tonal music are made up of only notes from the scale on which the passage is based. That is, if a passage is in the key of G major, most of the chords contain only notes found in the G major scale. Chords of this kind are called *diatonic chords*. All other chords – those using notes not in the scale – are called *altered* or *chromatic chords*. We will get to them later. At this point we're not going to worry about how you might “compose” music using diatonic chords, although that will come up soon. For now, we're going to concentrate on spelling and recognizing diatonic chords in various keys.

Lesson 1 Socratic Guiding Questions: Keep these questions in mind as you study!
How might the three forms of minor present a problem for building triads in key signatures?

Objective: Be able to do this by the end of this lesson.

1. Review minor scale forms and derive the composite minor scale

Introduction to Lesson 1: Review of Minor Scales/ The Problem with Minor

Before we can begin to talk about diatonic chords, we have to return to the problem of the minor scale. Because singers and instrumentalists are taught to practice natural, harmonic, and melodic minor scales, we sometimes assume that the tonal composer had three independent minor scale forms from which to choose. But this is not at all how the minor mode works in tonal music.

We can make the following generalization about the three minor scales: there is in a sense one minor scale that has two scale degrees, 6 and 7, that are variable. That is, there are two versions of 6 and two of 7, and both versions will usually appear in a piece in the minor mode. We call this scale the *composite minor scale* and an example of it is seen below. Notice the use of the raised 6 and the raised 7 as well as the natural or lowered 6 and 7.

A musical staff in treble clef showing the composite minor scale. The notes are: C (1), D (2), E (3), F (4), G (5), A (6), B (7), C (1). The A and B notes are marked with a sharp symbol (#) above them, labeled as (#6) and (#7) respectively. Below the staff, the solfège syllables are: la, ti, do, re, mi, fa, fi, so, si, la. There are horizontal lines under the 'fa' and 'so' syllables, indicating they are variable degrees.

It would be valuable to get acquainted with this form before moving on to seeing it in context. Use the staff line provided to write a “c composite minor scale.” Remember to include both the natural and the altered forms of the 6th and 7th scale degrees.

A blank musical staff in treble clef, intended for the student to write the composite minor scale.

Composite Minor in Context

How do composers decide which versions of 6 and 7 to use? Melodically, the most graceful thing for raised 6 and raised 7 to do is to ascend by step, whereas lowered or natural 6 and lowered or natural 7 tend naturally to descend by step; these tendencies were seen in our study of the melodic minor scale.

In the example below from Bach's *Well-Tempered Clavier, Book II*, when we look closely at Bach's treatment of 6 and 7 (the notes in parentheses), we see that all the motion is stepwise – in other words from a line to a space or space to a line – with only two exceptions. The first leap involving 6 or 7 is from the “Gb4” in measure 2. Here the eventual goal is “F4” not “A4” so the lowered or natural 6 form is used. The other leap occurs in the bass in measure 4. Here the goal of the line is “Bb2” not “Gb2,” so the raised 7 form is used.

J.S. Bach, *Well-Tempered Clavier, Book II, Prelude 22*

(Optional: to listen, follow this link: <https://www.youtube.com/watch?v=eSgUO2GMzP4>)

Still the use of melodic minor is just a guideline, not a rule. It's not difficult to find passages in which this guideline is not followed, for instance in Bach's *Well-Tempered Clavier, Book I, Prelude 10*, we see the use of the lowered (or natural) 6th and the lowered (or natural) 7 leading upward.

J.S. Bach, *Well-Tempered Clavier, Book I, Prelude 10*

(Optional: to listen, follow this link: <https://www.youtube.com/watch?v=KWLm3LwhrYs>)

In another instance, from Ludwig von Beethoven, the raised 7 and the lowered (or natural) 6 appear next to each other, forming a harmonic minor scale.

Beethoven, *Sonata Op. 2, No. 2, III, Trio*



a:

(Optional: to listen, follow this link: <https://youtu.be/EulIVulRt3Q?t=94>)

The reasons for such exceptions to the typical tendencies of six and Seven are usually harmonic. As we shall see later in the week, most of the underlying harmonies in minor conform to the harmonic minor scale.

Closing: Check your understanding of the lesson by answering the following questions.

- 1) What is the term for chords that contain no notes outside of the scale? What about chords that do contain such notes?

- 2) Individual lines in tonal music tend to conform most closely to which of the three traditional minor scales?

Tuesday, April 28

Music Theory Unit: Diatonic Chords in Major and Minor Keys

Lesson 2: Triads in the Major Scale

Lesson 2 Socratic Guiding Questions: Keep these questions in mind as you study!

Is there ever a time when a chord is seen in isolation in music? If not, how can we draw common relationships between different types of chords?

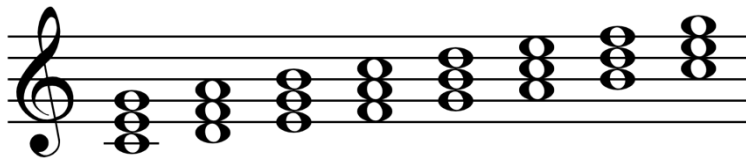
Objective: Be able to do this by the end of this lesson.

1. Derive diatonic triads in major

Introduction to Lesson 2: Diatonic Triads in Major

When we see chords in a piece of music it is helpful to be able to identify the root and the quality of that chord, as we have already done. Yet in order to understand the behavior of the chord (i.e. where it wants to lead) it is important to understand it within a greater context as well. That greater context in tonal music is the key signature. Triads can be constructed using any degree of the major scale as the root. Diatonic triads, as we have mentioned, will consist only of the notes belonging to the scale. Let's take a look at triads in C Major...

To do this we are going to build a close root position triad on each note of the C Major scale.



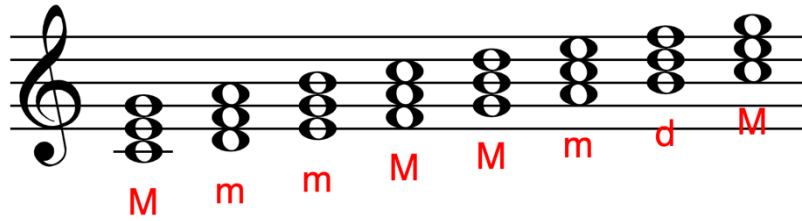
Notice that, regardless of how we would identify each of these chords individually, none of them have sharps or flats and thus they all fit into the key of C Major. These, then, are the *diatonic triads* found in the key of C Major. Because of this, we can begin to identify each of these chords in relation to that key signature.

The next step is to use our interval calculator to analyze the quality (e.g. Major, minor, etc.) of each chord. Take a few minutes to do that now...

Remember that we will align the root of each chord with prime (PP) and then determine which triangle each one aligns with to determine its quality. Notate the quality under each chord (e.g. M, m, d, A)

The Roman Numeral System

When we check the quality of each of the triads the following qualities emerge.



Since we know these chords arise in C Major, we can relate them to their respective roots (scale degrees) on which they are built. To distinguish the triads built on the various scale degrees from the scale degrees themselves we are going to use a system of Roman numerals (as opposed to Arabic numerals) to identify them. We can manipulate Roman numerals in various ways to communicate the root and quality of the chord according to the following chart.

Triad type	Roman numeral	Example
Major	Uppercase	V
Minor	Lowercase	ii
Diminished	Lowercase with a °	vii°
Augmented	Uppercase with a +	III+

Accordingly, we can analyze the chords in C Major as follows...

Scale degree of root note

1 2 3 4 5 6 7 8

Roman numeral I ii iii IV V vi vii° I

This system allows us to identify diatonic chords in any key according to the scale degree of its root note and the overall quality of the chord. The triad’s root is indicated by the number of the numeral and the quality is indicated by the form of the numeral itself.

Closing: Check your understanding of the lesson by labeling the following diatonic triads with the proper roman numerals according to the given major key signature.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

Wednesday, April 29

Music Theory Unit: Diatonic Chords in Major and Minor Keys

Lesson 3: Triads in the Composite Minor Scale

Lesson 3 Socratic Guiding Questions: Keep these questions in mind as you study!

Given what we know of the composite minor scale, how might its structure affect diatonic triads in minor keys? Will we have the same number of triads as in the major key? If not, what will be different?

Objective: Be able to do this by the end of this lesson.

1. Derive diatonic triads in composite minor

Introduction to Lesson 3: Diatonic Triads in Minor

Based on yesterday’s understanding of triads in major keys, we can apply the same principles of roman numeral analysis to minor key contexts. However, we must take into account the problem of the minor scale discussed on Monday. Additionally, we must consider the changes in quality that we will encounter in the minor mode.

The construction of triads is somewhat more involved in the minor mode than in major. Because 6 and 7 are variable, and because nearly all triads contain 6 or 7, more diatonic triads are possible in minor. Nonetheless, there are seven triads in minor (one for each scale degree) that occur more frequently than others, and these are the ones we will use in our exercises for now.

Let’s first examine the triads in the various minor scales and their qualities...

Natural Minor

The diagram shows the Natural Minor scale on a treble clef staff with a key signature of two flats (B-flat and E-flat). Seven diatonic triads are shown below the staff, each with a red label: m, d, M, m, m, M, M.

In the natural minor scale, we can see that even though the chords are diatonic to “c minor” the chord qualities have changed from the major pattern.

Harmonic Minor

The diagram shows the Harmonic Minor scale on a treble clef staff with a key signature of two flats. Seven diatonic triads are shown below the staff, each with a red label: m, d, A, m, M, M, d.

In the Harmonic minor scale, the 7th scale degree is raised affecting the 3rd, 5th, and 7th triads in the scale. Notice how their qualities have changed.

Melodic Minor

The diagram shows the Melodic Minor scale on a treble clef staff with a key signature of two flats. Seven diatonic triads are shown below the staff, each with a red label: m, m, A, M, M, d, d.

In the melodic minor scale, there are further changes to triads when we raise the 6th scale degree. Notice the change in quality for the 2nd, 4th, and 6th triads.

Roman Numerals in Composite Minor

When we piece all of this together, we get a total of 13 diatonic triads in the minor mode.

Though as we already said there are still seven that appear most often. On the staff below we see all 13 with the seven most common numerals circled.

Scale degree
of root note

1 2 2 3 3 4 4 5 5 6 #6 7 #7



Roman numeral

i ii° ii III III+ iv IV v V VI #vi° VII vii°

Notice that the roots of the triads circled above all belong to the harmonic minor scale. In fact, all the notes of the circled triads belong to the harmonic minor scale, with the exception of the fifth of the III chord. That being said any and all of the 13 diatonic minor triads can appear in a minor key signature.

Closing: Check your understanding of the lesson by identifying the given triads with the appropriate roman numeral in the given minor key signature.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

Thursday, April 30

Music Theory Unit: Diatonic Chords in Major and Minor Keys

Lesson 4: Diatonic Triads Review

Lesson 4 Socratic Guiding Questions: Keep these questions in mind as you study!

Why might it be important to know a chord’s relationship to a key signature?

Objective: Be able to do this by the end of this lesson.

1. Practice identifying triads in keys with Roman numerals

Introduction to Lesson 4: Review of Diatonic Triads in Major and Minor Keys

Having established a system by which we can relate a given triad to a key signature using roman numerals, this will become our primary means of identifying triads from this point forward.

While it is still important that we be able to call a chord by its root and quality (e.g. G Major), in the coming weeks we will be discussing how that chord functions within its local context, and that function will come to rest on its relationship to the key (i.e. its Roman numeral). That being said let’s consider a few things in review...

- 1) In a major key, which triads are minor?

- 2) In a minor key, which triads are major?

- 3) The triads on which two scale degrees are the same quality in both major and minor? (assume the most common chord qualities in minor)

- 4) Which of the four triad qualities occurs least often?

Given that the diatonic scale is a fixed set of pitches, our diatonic chords are limited to those notes available, which means that, as we have seen, there are a limited number of chords that appear. Furthermore, we see certain expected patterns arise; we can use these expectations to help us in our approach to Roman numeral analysis. Refer to the following table to review these expected chord qualities.

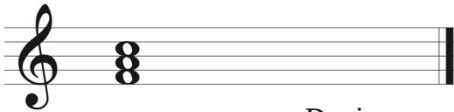

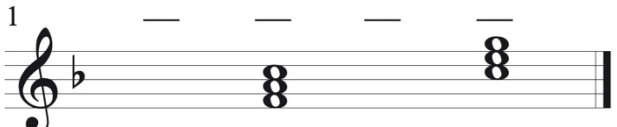
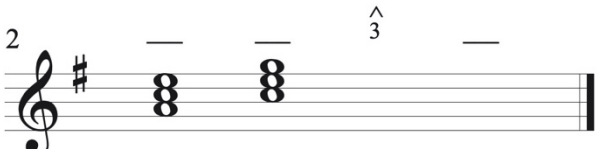
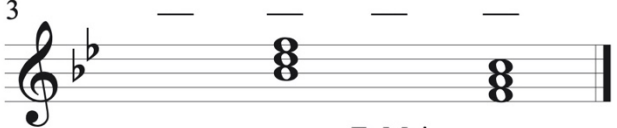

Diatonic Triads in Major Keys	
Major	I, IV, and V
Minor	ii, iii, and vi
Diminished	vii ^o
Augmented	none

Common Diatonic Triads in Minor Keys	
Major	III, V, and VI
Minor	i and iv
Diminished	ii ^o and vii ^o
Augmented	none

The process for identifying triads in a key can now rest on these expectations to a degree. We should notice that the chords for Major keys are limited to the seven chord types in the table. This means that as long as the chords we encounter in a given key signature are unaltered from the key (i.e. they do not carry any accidentals not found in the key signature) then we know they are diatonic and they are going to be analyzed according to the expected roman numerals. In minor keys we can follow a similar strategy but default to the common chord types. This means that, with the exception of V and vii° (which contain the raised 7 scale degree), we will see unaltered chords for the triads built on the other scale degrees and we can default to the expected roman numeral. Note: If there is an accidental attached to a chord that is not an accidental found in the key signature, we cannot assume the expected Roman numeral and we must analyze the quality of the chord to verify the proper Roman numeral form.

Closing: Analysis Practice

For the following examples the key signature is indicated as either the major or minor key. We will eventually discover how to tell the difference based on context but for now this information is provided. There are four elements associated with each problem: scale degree, notes, chord name and Roman numeral. From the one element given, deduce the remaining three and provide the answers as shown in the example below.

<p>Scale Degree _____ [^]5 _____</p> <p>Example </p> <p>Chord Symbol _____ _____ D min</p> <p>Roman Numeral _____ _____ _____</p>	<p>Solution </p> <p> <u>F Maj</u> <u>G Maj</u> D min</p> <p> <u>IV</u> <u>V</u> <u>ii</u></p>
<p>1 </p> <p> _____ _____ G min _____</p> <p>F: IV _____ _____ _____</p>	<p>2 </p> <p> _____ _____ [^]3 _____</p> <p> _____ _____ D Maj</p> <p>e: _____ _____ _____</p>
<p>3 </p> <p> _____ _____ E^b Maj _____</p> <p>B^b: ii _____ _____ _____</p>	<p>4 </p> <p> _____ _____ [^]6 _____</p> <p> _____ _____ D Maj _____</p> <p>b: _____ _____ _____ _____</p>

Friday, May 1

Music Theory Unit: Diatonic Chords in Major and Minor Keys

Quiz: Diatonic Triads in Major and Minor Keys

Objective: Be able to do this by the end of this lesson.

1. Demonstrate understanding of diatonic triads by taking a written assessment.

Quiz: Diatonic Triads in Major and Minor Keys

To assess your understanding of this week’s lessons you will complete the following quiz on Diatonic Triads. Please allot yourself 20 minutes to take the quiz. You may use the theory reference sheet (which includes a piano keyboard and the circle of fifths), as well as the interval calculator during the quiz for your reference.

Name _____

Date _____

Quiz: Roman Numeral Analysis

Diatonic Triads in Close Root-Position -

Indicate the Roman numeral of each triad in relation to the given key signature. Make sure that the Roman numeral form matches the chord quality and that the numeral itself aligns with the scale degree of the root of the chord.

Example **G:** ii

1 **F:** ____

2 **f#:** ____

3 **a:** ____

4 **E:** ____

5 **A:** ____

6 **c:** ____

7 **C:** ____

8 **e#:** ____

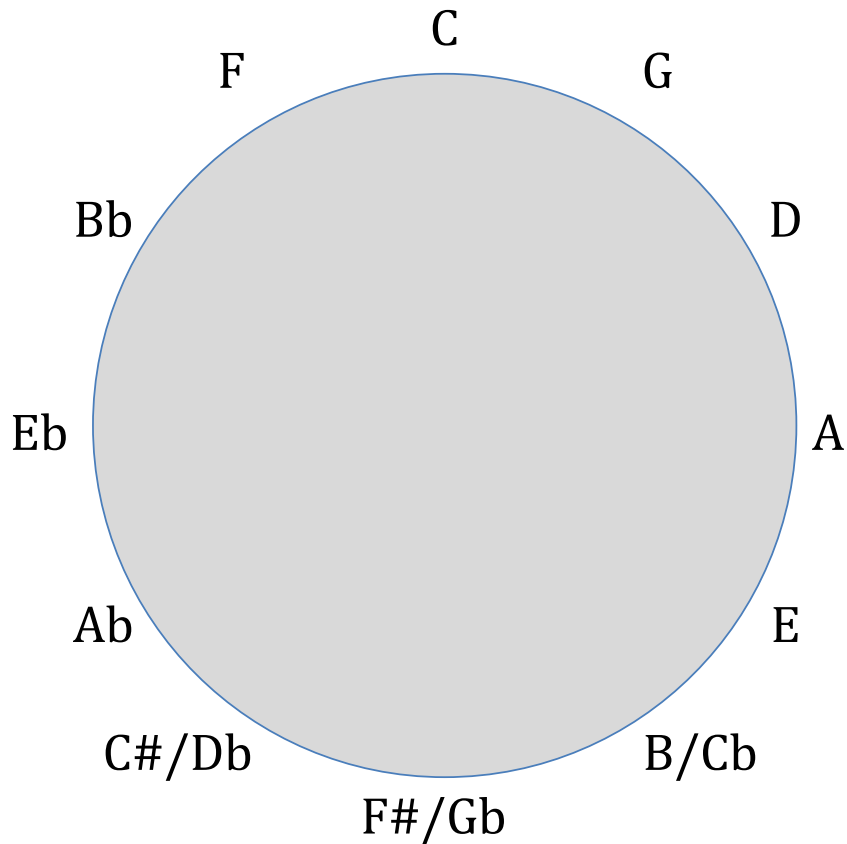
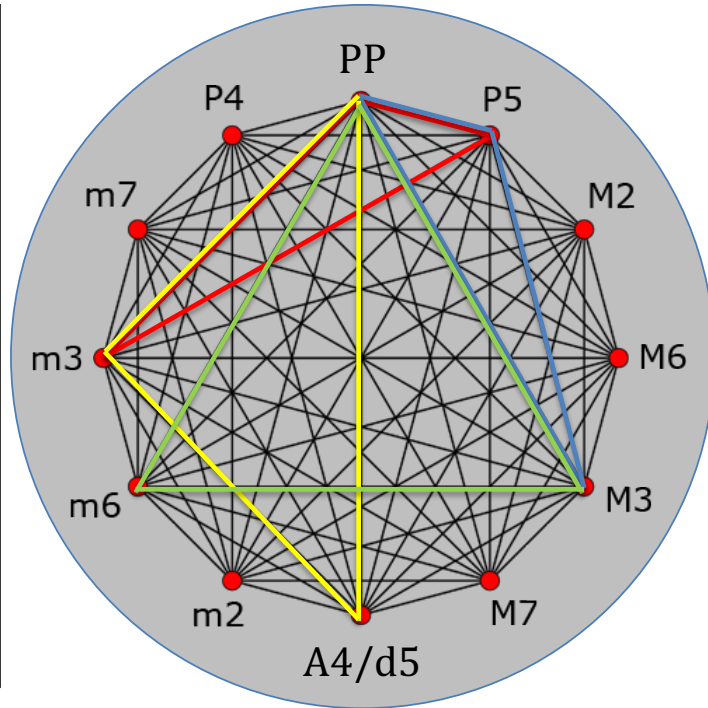
9 **Bb:** ____

10 **b:** ____

11 **B:** ____

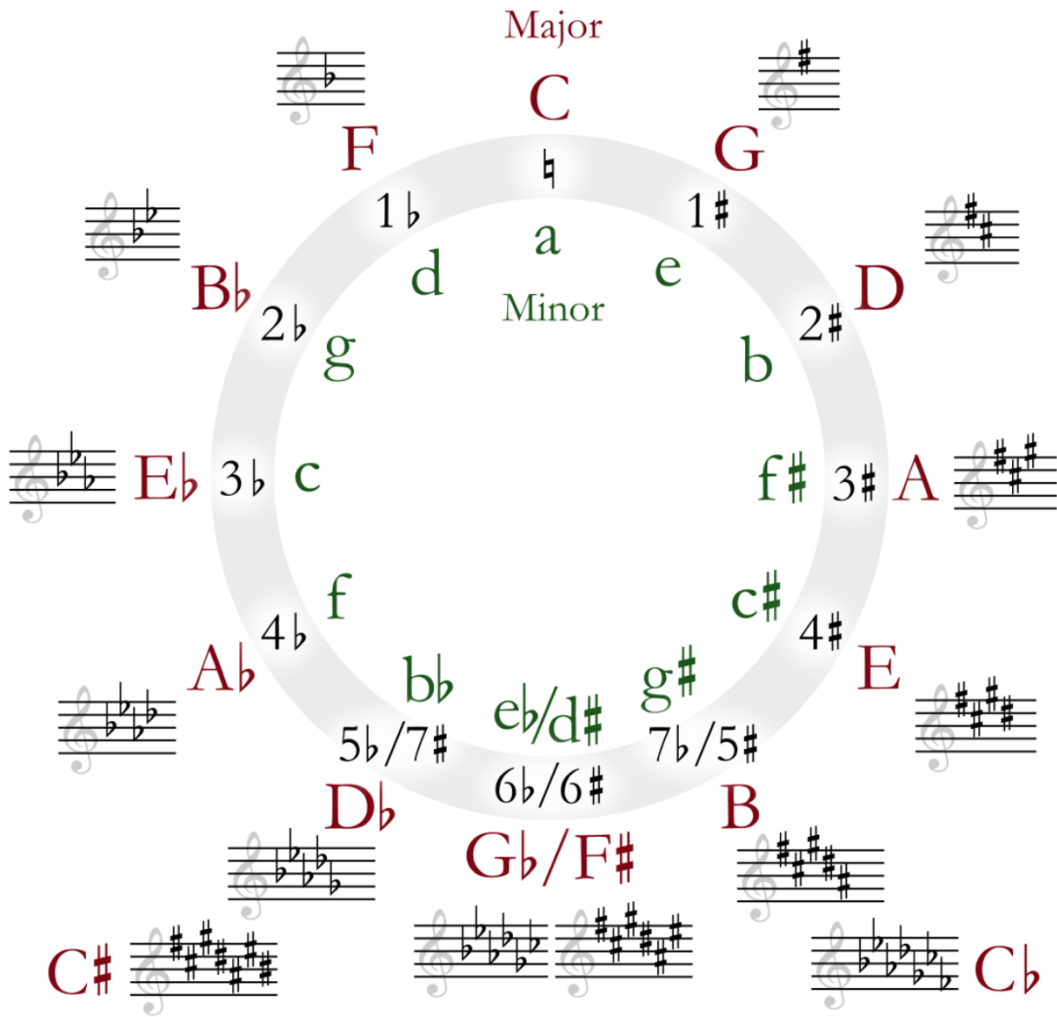
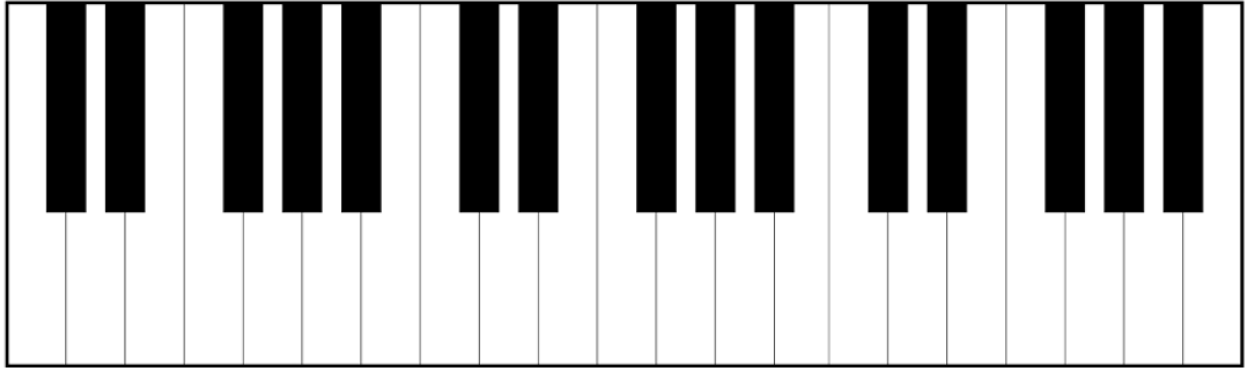
12 **f:** ____

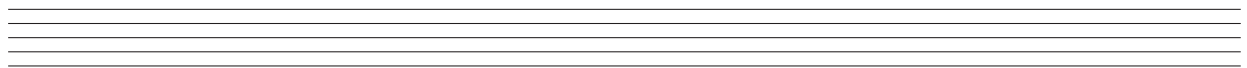
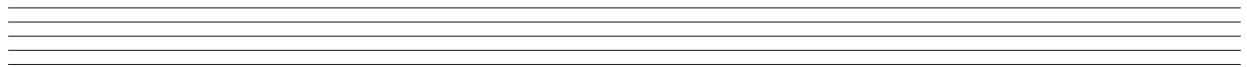
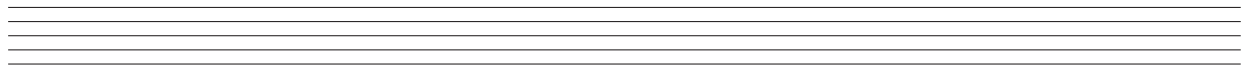
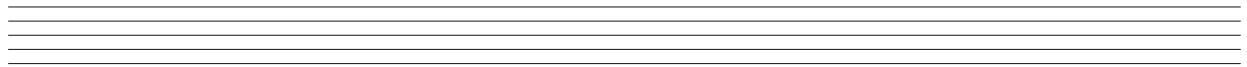
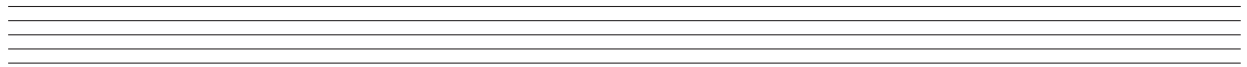
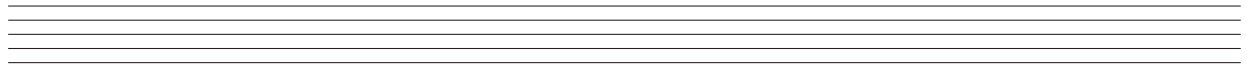
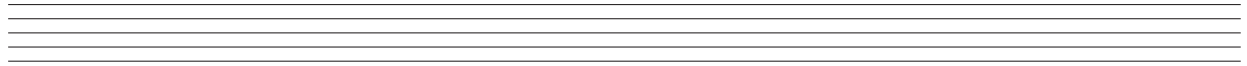
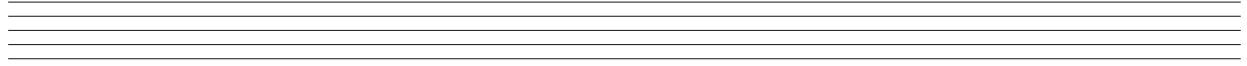
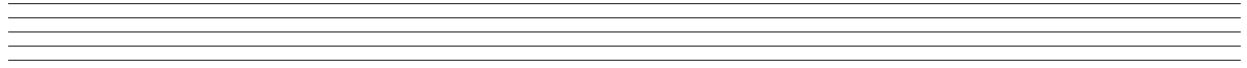
- Cut along the circumference of the circle to the right, and along the dotted line below.
 - Lay the interval structure on top of the circle of 5^{ths} at the bottom of the page to form the interval calculator.
 - When calculating intervals make sure to align prime (PP) with the lower note in the interval.



Music Theory Reference Sheet

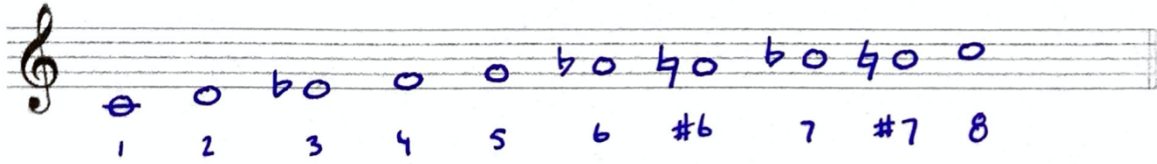
This sheet may be used as a study aid during the week's lessons





Answer Key

Monday, April 27



Closing: Check your understanding of the lesson by answering the following questions.

- 1) What is the term for chords that contain no notes outside of the scale? What about chords that do contain such notes?

A term for the chord which contains no note outside of the scale is "diatonic."

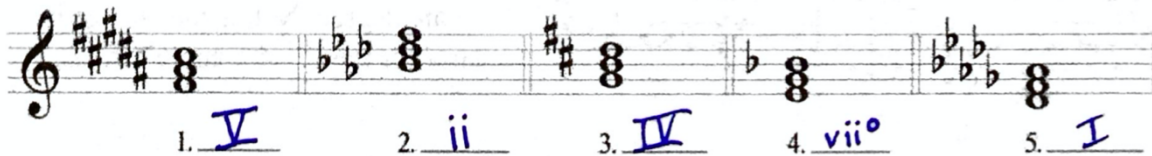
All other chords we may call "non-diatonic"

- 2) Individual lines in tonal music tend to conform most closely to which of the three traditional minor scales?

They tend to follow the harmonic minor pattern.

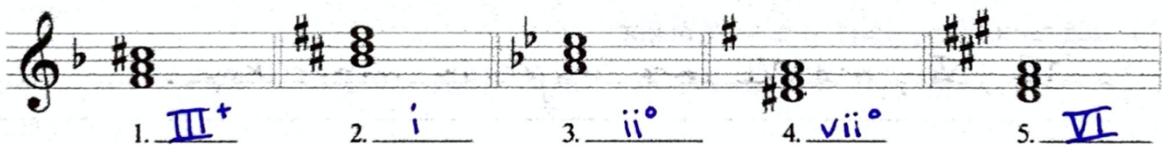
Tuesday, April 28

Closing: Check your understanding of the lesson by labeling the following diatonic triads with the proper roman numerals according to the given major key signature.



Wednesday, April 29

Closing: Check your understanding of the lesson by identifying the given triads with the appropriate roman numeral in the given minor key signature.



Thursday, April 30

1) In a major key, which triads are minor?

ii, iii, and vi are minor in major keys.

2) In a minor key, which triads are major?

III, V, and VI are major in minor keys.

3) The triads on which two scale degrees are the same quality in both major and minor?
(assume the most common chord qualities in minor)

V and vii° are the same in both major and minor.

4) Which of the four triad qualities occurs least often?

Augmented triads occur least often.

1

B^bMaj F Maj G min C Maj
F: IV I ii V

2

A min C Maj G Maj D Maj
e: iv VI III VII

3

C min B^bMaj E^bMaj F Maj
B^b: ii I IV V

4

E min A[#]dim D Maj G Maj
b: iv vii° III VI