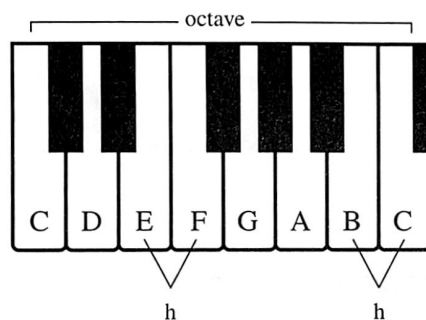


The Major Scale

In this chapter you will learn about major and minor scales, the scales that form the basis of tonal music. However, there are many other kinds of scales, some of which are covered in Chapter 28.

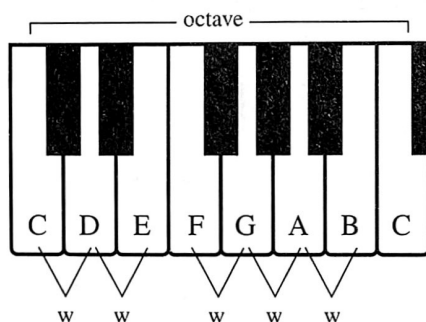
The **major scale** is a specific pattern of small steps (called half steps) and larger ones (called whole steps) encompassing an octave. A **half step** is the distance from a key on the piano to the very next key, white or black. Using only the white keys on the piano keyboard, there are two half steps in each octave, indicated by the letter “h” in Example 1-7.

Example 1-7



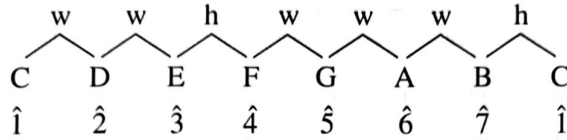
A **whole step** skips the very next key and goes instead to the following one. Using only the white keys on the piano keyboard, there are five whole steps in each octave, indicated by the letter “w” in Example 1-8.

Example 1-8

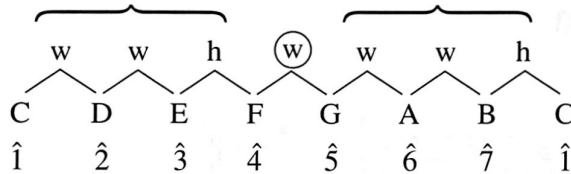


The major-scale pattern of whole and half steps is the same as that found on the white keys from any C up to the next C. In the next diagram, the numbers with carets above them ($\hat{1}$, $\hat{2}$, etc.) are scale degree numbers for the C major scale.*

* Throughout this book we will refer to major scales with uppercase letters—for example, A major or A—and minor scales with lowercase letters—for example, a minor or a.



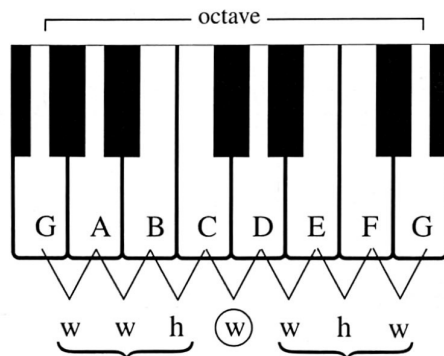
You can see from this diagram that half steps in the major scale occur only between scale degrees $\hat{3}$ and $\hat{4}$ and $\hat{7}$ and $\hat{1}$. Notice also that the major scale can be thought of as two identical, four-note patterns separated by a whole step. These four-note patterns are called **tetrachords**.



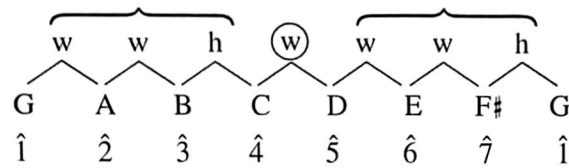
If we examine the steps on the white keys of a G-to-G octave, as in Example 1-9, we do not find the same pattern of whole and half steps that occurred in the C-to-C octave. To play a G major scale, we would need to skip the F key and play the black key that is between F and G. We will label that key with an **accidental**, a symbol that raises or lowers a pitch by a half or whole step. All the possible accidentals are listed in the following table.

| Symbol | Name | Effect |
|--------|--------------|------------------------------|
| × | Double sharp | Raise a whole step |
| # | Sharp | Raise a half step |
| ♮ | Natural | Cancel a previous accidental |
| ♭ | Flat | Lower a half step |
| ♭♭ | Double flat | Lower a whole step |

Example 1-9



We can make our G scale conform to the major-scale pattern by adding one accidental, in this case a sharp.



It is important to understand that major and minor scales always use all the letter names of the musical alphabet. It would not be correct to substitute a G \flat for the F# in a G major scale.

The scale is written on the staff in Example 1-10.

Example 1-10



Notice that when we write or say the names of notes and accidentals, we put the accidental last (as in F# or F sharp), but in staff notation the accidental always *precedes* the note that it modifies (as in Ex. 1-10).

The Major Key Signatures

One way to learn the major scales is by means of the pattern of whole and half steps discussed in the previous section. Another is by memorizing the key signatures associated with the various scales. The term **key** is used in music to identify the first degree of a scale. For instance, the key of G major refers to the major scale that begins on G. A **key signature** is a pattern of sharps or flats that appears at the beginning of a staff and indicates that certain notes are to be consistently raised or lowered. There are seven key signatures using sharps. In each case, the name of the major key can be found by going up a half step from the last sharp (Ex. 1-11).

Example 1-11

Example 1-11 shows seven key signatures for major keys, each with its corresponding number of sharps. The keys are G major (1 sharp), D major (2 sharps), A major (3 sharps), E major (4 sharps), B major (5 sharps), F# major (6 sharps), and C# major (7 sharps). Each key signature is shown on a grand staff (treble and bass clefs).

There are also seven key signatures using flats. Except for the key of F major, the name of the major key is the same as the name of the next-to-last flat (Ex. 1-12).

Example 1-12

Example 1-12 displays seven major keys on a grand staff (treble and bass clefs). The keys are arranged from left to right, each with its name and the number of flats indicated below the staff:

- F major (1 flat)
- B♭ major (2 flats)
- E♭ major (3 flats)
- A♭ major (4 flats)
- D♭ major (5 flats)
- G♭ major (6 flats)
- C♭ major (7 flats)

You may have noticed that there are three pairs of major keys that would sound exactly the same—that is, they would be played on the very same keys of the piano keyboard.

B major = C♭ major
 F♯ major = G♭ major
 C♯ major = D♭ major

Notes that are spelled differently but sound the same are said to be **enharmonic**; B major and C♭ major, for example, are enharmonic keys. If two major keys are not enharmonic, then they are **transpositions** of each other. To **transpose** means to write or play music in some key other than the original.

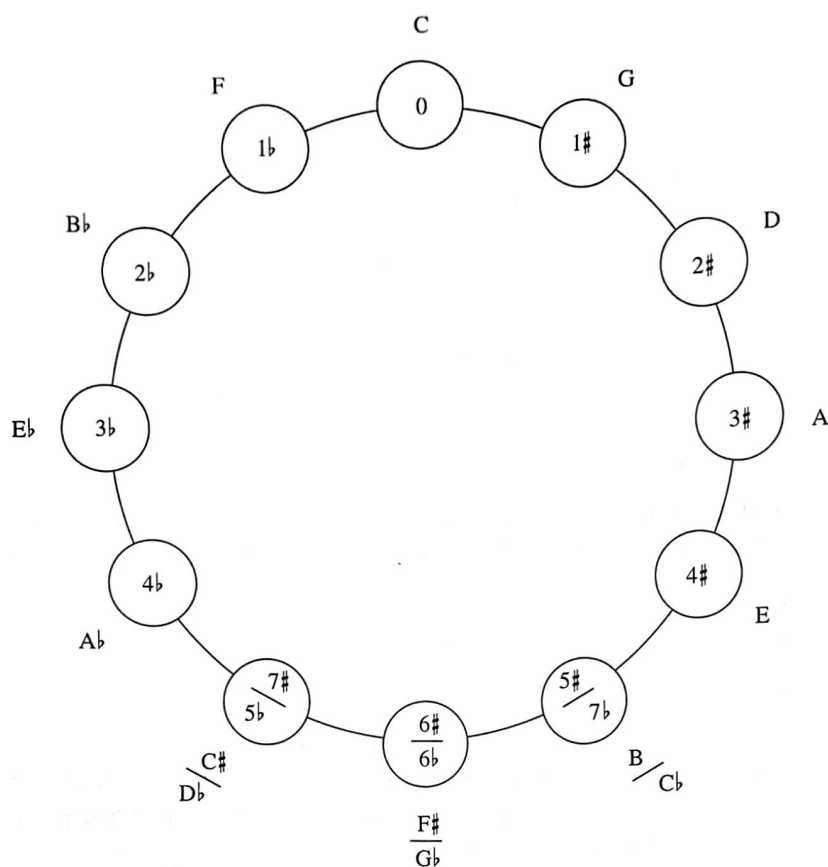
The key signatures in Examples 1-11 and 1-12 must be memorized—not only the number of accidentals involved but also their order and placement on the staff. Notice that the pattern of placing the sharps on the staff changes at the fifth sharp for both the treble and the bass clefs. Try saying aloud the order of accidentals for sharps (FCGDAEB) and for flats (BEADGCF) until you feel confident with them.

Key signatures are written in much the same way using the alto and tenor clefs as they are for treble and bass. The only exception is the placement of sharps in the tenor clef, as you can see in Example 1-13.

Example 1-13

Example 1-13 shows musical notation for two clefs: the alto clef (C-clef on the third line) and the tenor clef (C-clef on the fourth line). Each clef is shown with its key signature (one sharp, F♯) and a short melodic line.

Some people find it easier to memorize key signatures if they visualize a **circle of fifths**, which is a diagram somewhat like the face of a clock. Reading clockwise around the circle of fifths on the following page, you will see that each new key begins on $\hat{5}$ (the fifth scale degree) of the previous key.



CHECKPOINT

1. Does G3 lie below or above middle C?
2. How is a double sharp notated?
3. Half steps in the major scale occur between scale degrees _____ and _____ as well as between scale degrees _____ and _____.
4. The major scale consists of two identical four-note patterns called _____.
5. Name the 15 major keys.

Self-Test 1-2

(Answers begin on page 602.)

- A. Notate the specified scales using accidentals, *not* key signatures. Show the placement of whole and half steps, as in the example.

B. Identify these major key signatures.

C. Notate the specified key signatures.

D. Fill in the blanks.

| Key signature | Name of key | Key signature | Name of key |
|-----------------|-------------|-----------------|-------------|
| 1. Three flats | E♭ major | 8. 2 flats | B♭ major |
| 2. Seven sharps | C♯ major | 9. One sharp | G major |
| 3. 2 Sharps | D major | 10. Five flats | D♭ major |
| 4. One flat | F major | 11. 6 Sharps | F♯ major |
| 5. 4 flats | A♭ major | 12. 7 flats | C♭ major |
| 6. 5 sharps | B major | 13. Four sharps | E major |
| 7. Six flats | G♭ major | 14. 3 Sharps | A major |

E. Fill in the blanks, using the example as a model.

| | Major key | Key signature | Scale degree | Is this note |
|-----|-----------|---------------|--------------|--------------|
| Ex. | C | 0#/0 \flat | $\hat{3}$ | E |
| 1. | E \flat | 3 \flat | $\hat{2}$ | F |
| 2. | D \flat | 5 \flat | $\hat{5}$ | A \flat |
| 3. | G | 1 \sharp | 7 | F \sharp |
| 4. | B | 5 \sharp | $\hat{3}$ | D \sharp |
| 5. | A \flat | 4 \flat | 6 | F |
| 6. | C \flat | 7 \flat | 4 | F \flat |

Exercise 1-2 See Workbook.

Minor Scales

Musicians traditionally practice and memorize three minor-scale formations, although these are a simplification of how minor keys actually work, as we will see in Chapter 4. One of these is the **natural minor scale**. You can see from the following illustration that the natural minor scale is like a major scale with lowered $\hat{3}$, $\hat{6}$, and $\hat{7}$.

| | | | | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| C major | C | D | E | F | G | A | B | C |
| Scale degree | $\hat{1}$ | $\hat{2}$ | $\hat{3}$ | $\hat{4}$ | $\hat{5}$ | $\hat{6}$ | $\hat{7}$ | $\hat{1}$ |
| c natural minor | C | D | E \flat | F | G | A \flat | B \flat | C |

Another minor scale type is the **harmonic minor scale**, which can be thought of as major with lowered $\hat{3}$ and $\hat{6}$ (or as natural minor with a raised $\hat{7}$).

| | | | | | | | | |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| C major | C | D | E | F | G | A | B | C |
| Scale degree | $\hat{1}$ | $\hat{2}$ | $\hat{3}$ | $\hat{4}$ | $\hat{5}$ | $\hat{6}$ | $\hat{7}$ | $\hat{1}$ |
| c harmonic minor | C | D | E \flat | F | G | A \flat | B | C |

The third type of minor scale is the **melodic minor scale**, which has an ascending form and a descending form. The ascending form, shown next, is like major with a lowered $\hat{3}$ (or as natural minor with a raised $\hat{6}$ and $\hat{7}$).

| | | | | | | | | |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| C major | C | D | E | F | G | A | B | C |
| Scale degree | $\hat{1}$ | $\hat{2}$ | $\hat{3}$ | $\hat{4}$ | $\hat{5}$ | $\hat{6}$ | $\hat{7}$ | $\hat{1}$ |
| c ascending melodic minor | C | D | E \flat | F | G | A | B | C |

The descending form of the melodic minor scale is the same as the natural minor scale.

The three minor scale types are summarized in Example 1-14. The scale degrees that differ from the major are circled. Notice the arrows used in connection with the melodic minor scale in order to distinguish the ascending $\hat{6}$ and $\hat{7}$ from the descending $\hat{6}$ and $\hat{7}$. Notice that scale degrees $\hat{1}$ through $\hat{5}$ are identical in all three forms of the minor scale. This pattern of w-h-w-w-w is known as the **minor pentachord**.

Example 1-14

Natural minor
 $\hat{1}$ $\hat{2}$ $\hat{3}$ $\hat{4}$ $\hat{5}$ $\hat{6}$ $\hat{7}$ $\hat{1}$

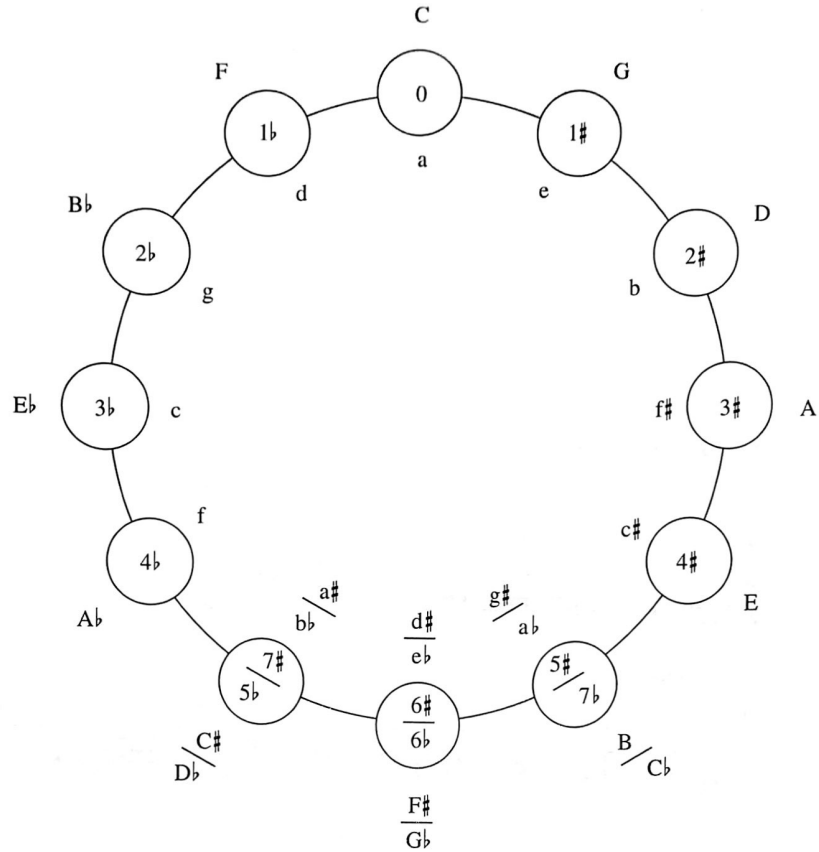
Harmonic minor
 $\hat{1}$ $\hat{2}$ $\hat{3}$ $\hat{4}$ $\hat{5}$ $\hat{6}$ $\hat{7}$ $\hat{1}$

Melodic minor
 $\hat{1}$ $\hat{2}$ $\hat{3}$ $\hat{4}$ $\hat{5}$ $\hat{6}$ $\hat{7}$ $\hat{1}$ $\hat{7}$ $\hat{6}$ $\hat{5}$ $\hat{4}$ $\hat{3}$ $\hat{2}$ $\hat{1}$

Minor Key Signatures

Minor key signatures conform to the natural minor scale, no matter which minor scale type is actually in use. Looking back at Example 1-14, you can see that the natural minor scale on C requires three accidentals: $E\flat$, $F\flat$, and $A\flat$. The key signature of c minor, then, is the same as the key signature of $E\flat$ major; c minor and $E\flat$ major are said to be **relatives** because they share the same key signature. The $\hat{3}$ of any minor key is $\hat{1}$ of its relative major, and the $\hat{6}$ of any major key is $\hat{1}$ of its relative minor. If a major scale and a minor scale share the same $\hat{1}$, as do C major and c minor, for example, they are said to be **parallels**. We would say that C major is the parallel major of c minor.

The circle of fifths is a convenient way to display the names of the minor keys and their relative majors, as well as their key signatures. In the following diagram, the names of the minor keys (in lowercase, as usual) are inside the diagram.



You may find it easier to learn the minor scales in terms of their relative majors, as in the preceding circle-of-fifths diagram, instead of in terms of their parallel majors, which is how minor scales were introduced on page 13. This will be most helpful regarding the keys of g#, d#, and a#, which have no parallel major forms. If you do use the relative major approach, remember that the key signature for any minor scale conforms to the *natural* minor scale and that accidentals must be used to spell the other forms. Specifically, you have to raise $\hat{7}$ of the natural minor scale to produce the harmonic minor scale and raise $\hat{6}$ and $\hat{7}$ of the natural minor scale to get the ascending form of the melodic minor scale. Example 1-15 illustrates the spellings for the related keys of F major and d minor.

Example 1-15

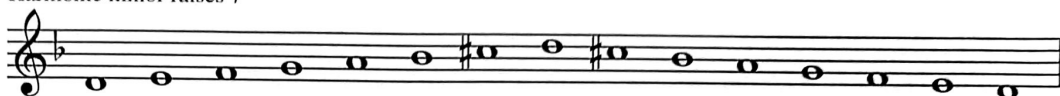
F major scale



Relative minor, natural form



Harmonic minor raises $\hat{7}$



Melodic minor raises $\hat{6}$ and $\hat{7}$, ascending only



One final hint: a quick way to find any minor key signature other than $g\sharp$, $d\sharp$, or $a\sharp$ is to begin with the key signature of the *parallel* major and to add three flats and/or subtract three sharps. Examples:

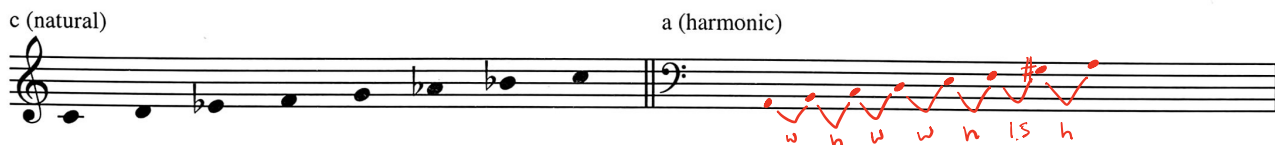
| Major key | | Minor key | |
|-----------|----------|-----------|---------|
| B \flat | 2 flats | b \flat | 5 flats |
| E | 4 sharps | e | 1 sharp |
| D | 2 sharps | d | 1 flat |

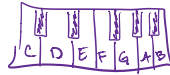
It is very important to practice faithfully all the major and minor scales on an instrument until they become memorized patterns. An intellectual understanding of scales cannot substitute for the secure tactile and aural familiarity that will result from those hours of practice.



(Answers begin on page 603.)

A. Notate the specified scales using accidentals, *not* key signatures. The melodic minor should be written both ascending and descending.





bb (natural) g# (harmonic)

f# (melodic)

B. Identify these minor key signatures.

a minor g minor e minor c# minor f minor ab minor d# minor eb minor

C. Notate the specified minor key signatures.

#: FCGDAEB : b

b (D) d (F) g# (B) c (Eb) f# (A) a (C) bb (Db) a# (C#)

D. Fill in the blanks.

| Key signature | Name of key | Key signature | Name of key |
|------------------------------|-----------------|---------------------|-----------------|
| 1. <u>1 flat</u> | d minor | 8. Two flats | <u>g</u> minor |
| 2. Six flats | <u>eb</u> minor | 9. <u>4 flats</u> | f minor |
| 3. Four sharps | <u>c#</u> minor | 10. <u>2 sharps</u> | b minor |
| 4. <u>3 sharps</u> | f# minor | 11. Three flats | <u>c</u> minor |
| 5. Six sharps | <u>d#</u> minor | 12. <u>7 flats</u> | ab minor |
| 6. <u>2 flats</u> | bb major | 13. One sharp | <u>e</u> minor |
| 7. <u>no sharps or flats</u> | a# major | 14. Five sharps | <u>g#</u> minor |

Exercise 1-3 See Workbook.

Scale Degree Names

Musicians in conversation or in writing often refer to scale degrees by a set of traditional names rather than by numbers. The names are shown in Example 1-16. Notice that there are two names for $\hat{7}$ in minor, depending on whether it is raised.

Example 1-16

tonic supertonic mediant subdominant dominant submediant (subtonic) leading tone

The origin of some of these names is illustrated in Example 1-17. Notice that the mediant lies halfway between the tonic and the dominant, while the submediant lies halfway between the tonic and the subdominant.

Example 1-17

subdominant tonic dominant
 ↓ ↓ ↓
 ↑ ↑
 submediant mediant

CHECKPOINT

Now is the time to start learning the scale degree names, if you do not know them already. Here are a couple of exercises that will help.

1. Translate these numbers aloud to scale degree names as fast as possible. Repeat as often as necessary until speed is attained.

$\hat{1} \hat{2} \hat{3} \hat{4} \hat{5} \hat{6} \hat{7} \hat{1} \hat{7} \hat{6} \hat{5} \hat{4} \hat{3} \hat{2} \hat{1}$

$\hat{3} \hat{5} \hat{7} \hat{6} \hat{4} \hat{2} \hat{1} \hat{6} \hat{3} \hat{7} \hat{2} \hat{5} \hat{4} \hat{3} \hat{1}$

$\hat{5} \hat{2} \hat{7} \hat{4} \hat{6} \hat{3} \hat{1} \hat{2} \hat{7} \hat{5} \hat{6} \hat{4} \hat{1} \hat{3} \hat{2}$

2. Call out or sing the scale degree names contained in each example that follows.

C:

G:

d:

leading tone

sub tonic

Intervals

An **interval** is the measurement of the distance in pitch between two notes. A **harmonic interval** results when the notes are performed at the same time, whereas a **melodic interval** occurs when the notes are played successively (Ex. 1-18). The method of measuring intervals is the same for both harmonic and melodic intervals.

Example 1-18

Harmonic intervals Melodic intervals

There are two parts to any interval name: the numerical name and the modifier that precedes the numerical name. As Example 1-19 illustrates, the numerical name is a measurement of how far apart the notes are vertically on the staff, regardless of what accidentals are involved.

Example 1-19

1 2 3 3 3 3 4 (etc.)

In talking about intervals, we use the terms **unison** instead of 1, and **octave** (8ve) instead of 8. We also say 2nd instead of “two,” 3rd instead of “three,” and so on. Intervals smaller than an 8ve are called **simple intervals**, whereas larger intervals (including the 8ve) are called **compound intervals**.

It is important to notice in Example 1-19 that the harmonic interval of a 2nd is notated with the top note offset a little to the right of the bottom note. Accidentals are offset in the same way for harmonic intervals of a 2nd, 3rd, or 4th, if both notes require an accidental.

Self-Test 1-4

(Answers begin on page 604.)

Provide the numerical names of the intervals by using the numbers 1 through 8.

2
5
7
1
3
4
6^{ve}
6
4
2
6
7
8^{ve}
3
5

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Exercise 1-4 See Workbook.

Perfect, Major, and Minor Intervals

One way to begin learning the modifiers for intervals is by relating them to the intervals contained in the major scale, specifically the intervals from $\hat{1}$ up to the other scale degrees. This method can then be applied in any context, whether or not the major scale is actually being used.

The term **perfect** (abbreviated P) is a modifier used only in connection with unisons, 4ths, 5ths, 8ves, and their compounds (11ths, and so on). As Example 1-20 illustrates, a P1, P4, P5, and P8 can all be constructed by using $\hat{1}$ in the major scale as the *bottom* note.

Example 1-20

$\hat{1}$ - $\hat{1}$ $\hat{1}$ - $\hat{4}$ $\hat{1}$ - $\hat{5}$ $\hat{1}$ - $\hat{1}$
P1
P4
P5
P8

If we want to spell one of these intervals above $E\flat$, for example, we need only to think of scale steps $\hat{1}$, $\hat{4}$, and $\hat{5}$ of the $E\flat$ major scale. If the bottom note does not commonly serve as $\hat{1}$ of a major scale (such as $D\sharp$), remove the accidental temporarily, spell the interval, and then apply the accidental to both notes (Ex. 1-21).

Example 1-21

P5 above P5 above P5 above
 $D\sharp = ?$ $D\flat = A\flat$ $D\sharp = A\sharp$

The modifiers **major** and **minor** are used only in connection with 2nds, 3rds, 6ths, and 7ths. The intervals formed by $\hat{1}-\hat{2}$, $\hat{1}-\hat{3}$, $\hat{1}-\hat{6}$, and $\hat{1}-\hat{7}$ in the major scale are all major intervals, as Example 1-22 illustrates.

Example 1-22

$\hat{1} - \hat{2}$ $\hat{1} - \hat{3}$ $\hat{1} - \hat{6}$ $\hat{1} - \hat{7}$
 M2 M3 M6 M7

If a major interval is made a half step smaller without altering its numerical name, it becomes a minor interval (Ex. 1-23). Notice that you can make an interval smaller by lowering the top note or raising the bottom note.

Example 1-23

M2 m2 M3 m3 M6 m6 M7 m7

Self-Test 1-5

(Answers begin on page 604.)

A. All the intervals that follow are unisons, 4ths, 5ths, or 8ves. Put "P" in the space provided *only* if the interval is a perfect interval.

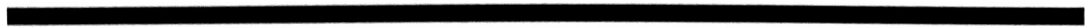
$\frac{P}{1} 5$ $\frac{P}{2} 4$ $\frac{P}{3} 1$ $\frac{X}{4} 5$ $\frac{P}{5} 8$ $\frac{P}{6} 4$ $\frac{X}{7} 5$ $\frac{P}{8} 4$ $\frac{P}{9} 5$ $\frac{P}{10} 8$

B. All the intervals that follow are 2nds, 3rds, 6ths, or 7ths. Write "M" or "m" in each space, as appropriate.

$\frac{M}{1} 3$ $\frac{m}{2} 6$ $\frac{m}{3} 7$ $\frac{M}{4} 2$ $\frac{m}{5} 6$ $\frac{m}{6} 2$ $\frac{m}{7} 3$ $\frac{M}{8} 7$ $\frac{M}{9} 6$ $\frac{m}{10} 2$

C. Notate the specified intervals above the given notes.

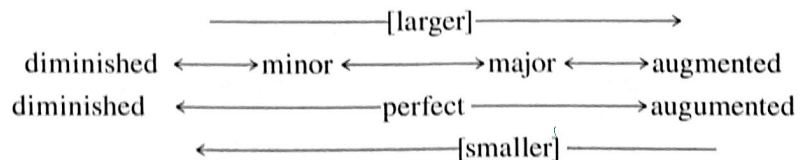
$\frac{m2}{1}$ $\frac{P4}{2}$ $\frac{M6}{3}$ $\frac{m3}{4}$ $\frac{P5}{5}$ $\frac{m6}{6}$ $\frac{P8}{7}$ $\frac{M2}{8}$ $\frac{M7}{9}$ $\frac{P4}{10}$
 $\frac{M3}{11}$ $\frac{P5}{12}$ $\frac{m7}{13}$ $\frac{m2}{14}$ $\frac{M6}{15}$ $\frac{P5}{16}$ $\frac{P8}{17}$ $\frac{M7}{18}$ $\frac{M3}{19}$ $\frac{m7}{20}$



Exercise 1-5 See Workbook.

Augmented and Diminished Intervals

If a perfect or a major interval is made a half step larger without changing the numerical name, the interval becomes **augmented** (abbreviated +). If a perfect or a minor interval is made a half step smaller without changing its numerical name, it becomes **diminished** (abbreviated °). These relationships are summarized as follows:



There is no such thing as a diminished unison. Doubly augmented and doubly diminished intervals are possible, but they seldom occur. **Tritone** is a term used for the +4 or its enharmonic equivalent, the °5.

Inversion of Intervals

Descending intervals, especially large ones, are often easier to spell and identify through the use of **interval inversion**. We invert an interval by putting the bottom pitch above the top one; for example, the interval D-A inverts to A-D. When we invert an interval, the new numerical name is always different from the old one. The new numerical name can be calculated by subtracting the old numerical name from 9.

| | | | | | | |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Constant value of 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| Minus old numeric name | <u>-2</u> | <u>-3</u> | <u>-4</u> | <u>-5</u> | <u>-6</u> | <u>-7</u> |
| Equals new numeric name | 7 | 6 | 5 | 4 | 3 | 2 |

You can see that an inverted 2nd becomes a 7th, a 3rd becomes a 6th, and so on (Ex. 1-24).

Example 1-24



The modifier also changes when an interval is inverted, with the exception of perfect intervals.

| | | | | | |
|--------------|---|---|---|---|---|
| Old modifier | m | M | P | + | ° |
| New modifier | M | m | P | ° | + |

As an example of the usefulness of inversion, suppose you wanted to know what note lies a m6 below G3. Invert the m6 down to a M3 up, as in Example 1-25, transpose the B3 down an 8ve, and you find that the answer is B2.

Example 1-25



m6† = ? M3† = B3 m6† = B2

Fluency with intervals, as with scales, is necessary for any serious musician and will provide a solid foundation for your further study. As you did with scales, you will benefit from finding out how various intervals sound and feel on a musical instrument.

One exercise you can do (you can think of others) is to write out the notes of the chromatic scale in random order. Include each black key twice—once as a sharpened note and once as a flatted note. Then play some interval above and below each note. Work for speed, using your ear to correct yourself.

Consonant and Dissonant Harmonic Intervals

In tonal music, some harmonic intervals are considered to be consonant, whereas others are considered to be dissonant. The terms **consonant** and **dissonant** can be defined roughly as meaning pleasing to the ear and not pleasing to the ear, respectively, but these are very dependent on context. Some of the most exciting moments in tonal music involve dissonance, which is certainly not displeasing in that context, but the dissonances resolve eventually to the consonances that give them meaning. As you can imagine, this is a complex subject, and it is one with which much of this book is concerned.

For now it will suffice to say that major and minor 3rds and 6ths and perfect 5ths and 8ves are consonant. All other harmonic intervals, including all augmented and diminished intervals, are dissonant. An exception is the P4, which is considered dissonant only when it occurs above the lowest voice (also called the **bass**, in both vocal and instrumental music).

CHECKPOINT

1. What is the term for an interval in which the notes are played in succession instead of simultaneously?
2. Is there such a thing as a m5? A P6?
3. A perfect interval made a half step smaller without changing its numerical name becomes _____.
4. A °5 inverted becomes a _____.
5. Intervals that are relatively displeasing to the ear are classified as _____.

Self-Test 1-6

(Answers begin on page 604.)

A. Most of the following intervals are either augmented or diminished. Label each interval.

The musical staff shows ten intervals on a treble clef with a key signature of one sharp (F#). The intervals and their handwritten labels are:

- Interval 1: F#4 - G4 (labeled 5+)
- Interval 2: G4 - A4 (labeled 7°)
- Interval 3: A4 - B4 (labeled M3)
- Interval 4: B4 - C5 (labeled 4°)
- Interval 5: C5 - D5 (labeled 2+)
- Interval 6: D5 - E5 (labeled m7)
- Interval 7: E5 - F#5 (labeled 5°)
- Interval 8: F#5 - G5 (labeled 3°)
- Interval 9: G5 - A5 (labeled 6+)
- Interval 10: A5 - B5 (labeled 4+)

B. Label what each interval becomes when it is inverted.

- 1. P4 becomes P5
- 2. M7 becomes m2
- 3. +2 becomes °7
- 4. M3 becomes m6
- 5. °5 becomes +4
- 6. m2 becomes M7
- 7. m6 becomes M3
- 8. +6 becomes °3

C. Notate the specified interval *below* the given note. (You may find it helpful to invert the interval first in some cases.)

A musical staff in bass clef with ten notes. Below each note is a fraction representing an interval to be written below the note. The intervals are: 1. P5/1, 2. m7/2, 3. m3/3, 4. M6/4, 5. +4/5, 6. M7/6, 7. +5/7, 8. m6/8, 9. M2/9, 10. °7/10.

D. Label each interval in this melody (from Wagner's *Götterdämmerung*).

A musical staff in treble clef showing a melody. Intervals between notes are labeled with numbers 1 through 12 and their quality: 1. m3, 2. P1, 3. m6, 4. P8, 5. M3, 6. P4, 7. m3, 8. °5, 9. m2, 10. P, 11. m2, 12. M7.

E. Beneath each of the following harmonic intervals, indicate whether it is consonant ("c"), dissonant ("d"), or dissonant only if the bass has the bottom note of the interval ("d bass").

| | 1. m7 | 2. P1 | 3. P8 | 4. °7 | 5. m6 |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| c | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d bass | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | 6. M2 | 7. P5 | 8. M3 | 9. +2 | 10. P4 |
|--------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| c | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d bass | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Exercise 1-6 See Workbook.