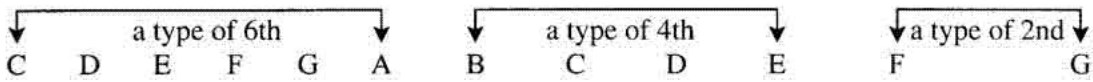


INTERVALS

To understand any melodic or harmonic discussion, one must understand intervals. An interval measures the space between two pitches. The smallest interval in Western music is the semitone or half step (either name may be used). This is the distance from one key to the next on the piano, for instance from C to C[♯].

The next-to-smallest interval is the **tone**, or **whole step**. This is the distance between notes that are two keys apart on the piano. For instance, from C to D is a whole step. The semitone and tone form the basis for measurement of larger intervals.

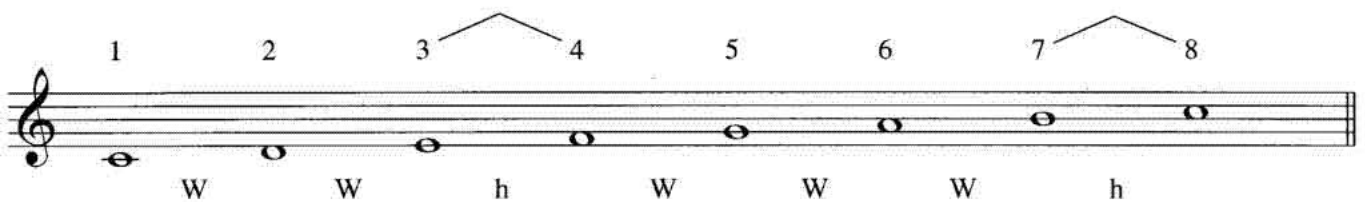
Interval measurements have two parts: **quantity** and **quality**. The quantity, or numeric value, is determined by the musical alphabet: C D E F G A B. For example, the interval formed by the notes C and G will always be some type of 5th, regardless of the quality of C or G (flat or sharp).



Major and Perfect Intervals

The *quality* of an interval is determined by comparison with the intervals found in the **major scale**. When compared with a major scale, a whole step is found to be equal to the distance from the first to the second note, giving us yet another name for it: the **major second**.

It should be committed to memory that any major scale contains half steps (h) between scale degrees 3–4 and 7–8, and whole steps (W) between all other pairs of notes. The half steps in any scale can be indicated with a wedge-shaped mark, or caret symbol (^). Here's the major scale in the key of C.



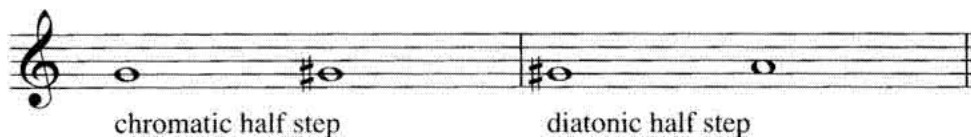
The distance from the root to the various pitches in the major scale form the basic intervals against which all others are measured. These eight intervals are divided into two basic types, **perfect** or **major**.

- **Perfect:** unisons, 4ths, 5ths, octaves
- **Major:** 2nds, 3rds, 6ths, 7ths



Minor, Diminished, and Augmented Intervals

A **chromatic half step** is a half step written as the same note twice with different accidentals (i.e., G–G[#]), while a **diatonic half step** is a half step that uses two different note names (i.e., G[#]–A). The appearance on the staff may be different, but the interval is the same.



Major and perfect intervals may be **augmented** (increased in size) or **diminished** (reduced in size) by either type of half step to change their qualities.

Major and **perfect** intervals become **augmented** when the upper note is raised by a half step, or the lower note is lowered by a half step. The process may be referred to as **augmentation**.



Intervals can be made larger by placing a **#** before the upper note or a **b** before the lower note.

An **augmented** interval becomes **doubly augmented** when the upper note is raised by a half step, or the lower note is lowered by a half step.



When a **major** interval is diminished by a half step it becomes **minor**.



Intervals can be made smaller by placing a **b** before the upper note or a **#** before the lower note.

Through **diminution**, **minor** and **perfect** intervals become **diminished**.

Musical notation illustrating interval changes:

- Minor 6th becomes Diminished 6th (indicated by a flat on the upper note).
- Perfect 5th becomes Diminished 5th (indicated by a flat on the upper note).

Arrows labeled "or" indicate alternative ways to achieve the diminished quality: lowering the upper note or raising the lower note.

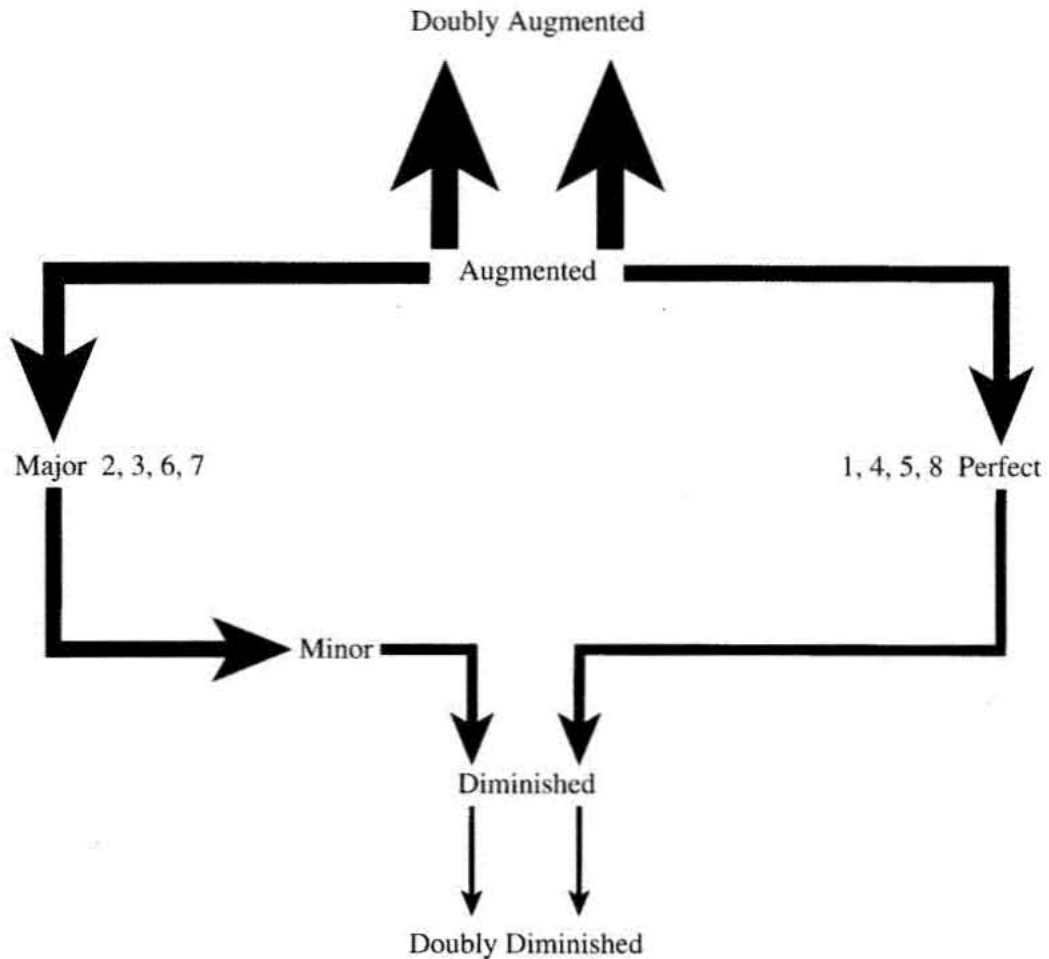
A **diminished** interval becomes **doubly diminished** when the upper note is lowered by a half step or the lower note is raised by a half step.

Musical notation illustrating interval changes:

- Diminished 7th becomes Doubly Diminished 7th (indicated by a double flat on the upper note).
- Diminished 5th becomes Doubly Diminished 5th (indicated by a double flat on the upper note).

Arrows labeled "or" indicate alternative ways to achieve the doubly diminished quality: lowering the upper note or raising the lower note.

This illustration will help you remember the order of changing interval qualities. Notice that perfect intervals jump directly to diminished; there is no such interval as a minor 5th!



It is possible for notes and intervals to have different names in spite of containing the same number of half steps and producing the same sound. For instance, an augmented 2nd above C is D[♯], and a minor 3rd above C is E[♭]. Both intervals contain three half steps, but occur in different situations. These intervals (as well as the notes D[♯] and E[♭]) are referred to as **enharmonic equivalents**.

When an interval is **inverted** (the order of the notes is changed, i.e. C to D becomes D to C) you'll find its complementary partner. For instance, an inverted major 2nd is equal to a minor 7th, an inverted major 3rd is a minor 6th, and so on. Notice that inverted major intervals are minor (and vice versa) while inverted perfect intervals are still perfect. These interval pairs should also be memorized, to facilitate further study.

Inversions of Major Scale Intervals

The image shows a musical staff with a treble clef. Seven pairs of notes are placed on the staff to represent different intervals. Below each pair is a label: Minor 7th, Minor 6th, Perfect 5th, Perfect 4th, Minor 3rd, Minor 2nd, and Perfect unison.

Interval Abbreviations

Intervals are used so often in describing chords and scales that they are sometimes named in an extremely abbreviated way. Learn to recognize these variations in interval names.

- Perfect and major intervals are implied by no mention of their quality at all: 5 for P5 (perfect 5th), 7 for M7 (major 7th), etc.
- The word “sharp,” or the sharp symbol (♯) is often used instead of “augmented” (or its abbreviations, “**aug**” or “+”).
- The word “flat” or the flat symbol (♭) is often used instead of “**min**” or “**m**.”
- When a perfect interval (1, 4, 5, or 8) becomes diminished, it may be written with one flat (♭) instead of **dim** or **d**, or the diminished symbol (“[◌]”).
- When a major interval (2, 3, 6, 7) becomes minor, it too is often written with a ♭ instead of **min** or **m**, for instance, ♭2 instead of **m2**.
- When a major interval becomes diminished, it can be written with two flats (♭♭) instead of **dim** or **d**, for instance ♭♭7 instead of **dim7** or **d7**.

This all boils down to exclusive use of the ♭, ♯, or no symbol to accomplish shorthand (though precise) naming of any interval. You should, however, still know that a ♭3 is **minor**, while a ♭5 is **diminished**.

When naming intervals, place the symbol before the number, not after: ♯4, ♭7, etc. (When naming **notes**, place the symbol after: F[♯], B[♭].)

The augmented 4th/diminished 5th intervals are also called the **tritone**, abbreviated **TT**. A tritone equals three whole steps.

The charts below list all the intervals up to the 13th, as they are most commonly named in the jazz idiom. (Not all possible augmented and diminished names are listed.)

Intervals smaller than an octave are called **simple intervals**.

Semitones	Interval	Abbreviations
0	Unison	
1	Min 2nd	m2, $\flat 2$
2	Maj 2nd	M2, 2
3	Min 3rd/Aug 2nd	m3, $\flat 3$, $\sharp 2$, +2
4	Maj 3rd	M3, 3
5	Perfect 4th	P4, 4
6	Dim 5th /Aug 4th	$\flat 5$, $\sharp 4$, +4
7	Perfect 5th	P5, 5
8	Min 6th/Aug 5th	m6, $\flat 6$, $\sharp 5$, +5
9	Maj 6th/Dim 7th	M6, 6, $\flat\flat 7$, $\flat 7$, $\circ 7$
10	Min 7th	m7, $\flat 7$
11	Maj 7th	M7, 7
12	Octave	P8, 8

Intervals larger than an octave are called **compound intervals**. They may be analyzed as a simple interval raised by an octave.

Semitones	Interval	Abbreviations	Simple Equivalent
13	Min 9th	m9, $\flat 9$	$\flat 2$ + octave
14	Maj 9th	M9, 9	2 + octave
15	Aug 9th/Min 10th	$\sharp 9$, $\flat 10$	$\flat 3$ + octave
16	Maj 10th	M10, 10	3 + octave
17	Perfect 11th	P11, 11	4 + octave
18	Aug 11th	$\sharp 11$, +11	$\sharp 4$ + octave
19	Perfect 12th	P12, 12	5 + octave
20	Min 13th	m13, $\flat 13$	$\flat 6$ + octave
21	Maj 13th	M13, 13	6th + octave

Consonant Intervals and Dissonant Intervals

A **harmonic** interval results if the notes are played at the same time, while a **melodic** interval occurs when the notes are played successively. The method of measuring intervals is the same for both harmonic and melodic intervals.



Harmonic intervals may be either **consonant** or **dissonant**.

- Consonant intervals occur when two pitches that are sounded together produce an agreeable sound. Consonance gives the impression of unity, cohesion, and stability.
- Dissonant intervals, on the other hand, occur when two pitches that are sounded together produce a sound that seems to require modification or resolution. Dissonance gives the impression of instability, tension, and the need to resolve to a consonance.

Semitones	Interval	Abbreviations
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5	Perfect 4th	P4, 4
6	Dim 5th /Aug 4th	\flat 5, \sharp 4, +4
7	Perfect 5th	P5, 5
8	Min 6th/Aug 5th	m6, \flat 6, \sharp 5, +5
9	Maj 6th/Dim 7th	M6, 6, $\flat\flat$ 7, \flat 7, \circ 7
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Consonant intervals are subdivided into three types:

PERFECT CONSONANCE	IMPERFECT CONSONANCE	VARIABLE CONSONANCE
Perfect Octave: P8 Perfect Fifth: P5	Major Third: M3 Minor Third: m3 Major Sixth: M6 Minor Sixth: m6	Perfect Fourth: P4
All the other intervals are dissonant.		

Enharmonically equivalent intervals usually appear in different contexts and thus should not be considered the same as their counterparts, i.e. while a minor 3rd is consonant, an augmented 2nd is dissonant.

The consonance or dissonance of the perfect 4th interval also depends on the context in which it occurs. If it stands alone on the root of a key center, it is dissonant. It may be consonant if it occurs over other notes as part of a chord.

This is a simplification of the traditional rules of consonance and dissonance that were established during the Renaissance. Although the descriptions may not apply to the way modern ears hear these intervals, the principles still form the basis for Western harmonic practice, including jazz harmony.

Chapter 1 Exercises

1. Identify the following intervals.

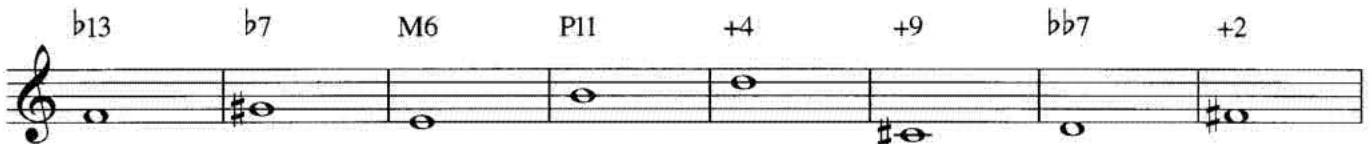
Interval 1:  _____

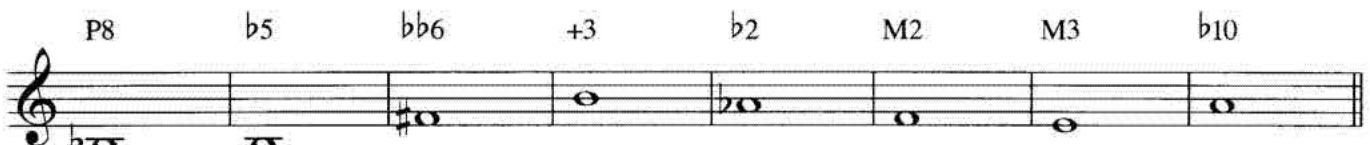
Interval 2:  _____

Interval 3:  _____

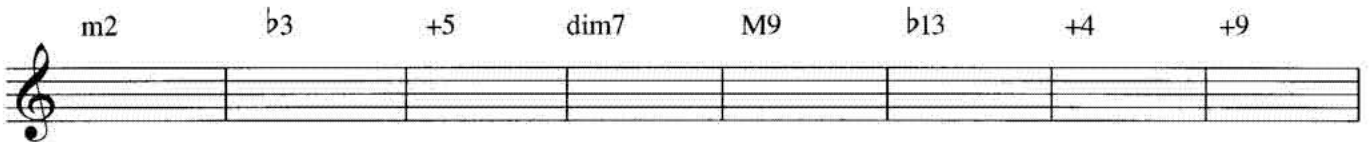
Interval 4:  _____

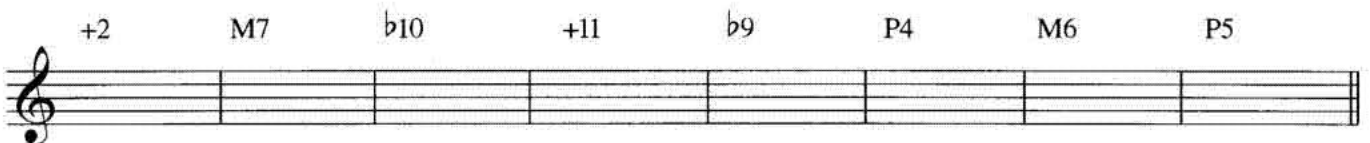
2. Provide the following intervals above the given pitch.

Interval 1:  $b13$ $b7$ $M6$ $P11$ $+4$ $+9$ $bb7$ $+2$

Interval 2:  $P8$ $b5$ $bb6$ $+3$ $b2$ $M2$ $M3$ $b10$

3. Write the following intervals (from any pitch).

Interval 1:  $m2$ $b3$ $+5$ $dim7$ $M9$ $b13$ $+4$ $+9$

Interval 2:  $+2$ $M7$ $b10$ $+11$ $b9$ $P4$ $M6$ $P5$

4. Write the following intervals above the given note.

P8	b5	bb6	+3	b2	M2	M3	b10
b13	b7	M6	P11	+4	+9	bb7	+2

5. Identify each interval as either consonant or dissonant by writing "con" or "diss" below.

—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—