Theory Reference Guide

A Cheat Sheet / Survival Guide

V3.0.0

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Note:
A color-coding system is used within this document. It is as follows:

Green:	**Major, or Constructed with Major**
Blue:	**Minor, or Constructed with Minor**
Yellow:	**Augmented, or Constructed with Augmented**
Red:	**Diminished, or Constructed with Diminished**
Purple:	**Other**
Orange:	**Indicates an Important Word or Phrase**

Whole-Steps and Half-Steps

In this reference guide, I will frequently use whole-steps and half-steps to convey information. One of the most basic things to understand is the concept of whole-steps and half-steps.

First, let's understand what half-steps are. A half-step is the smallest possible distance between any two notes on the piano keyboard. As an example:

One half-step above "C" is "C#".
Two half-steps above "C" is "D".
Four half-steps above "C" is "E".

When counting half-steps, do not count the note that you start counting on as one. It is counted as zero. Here is an example of this concept:

Example: Find 5 half-steps above "C".

Process:

Identify "C". If "C" is zero, "C#" must be one.
Therefore, Five half-steps above "C" is "F".

(Two) Half-Steps equals (one) Whole Step. Let's take another example to understand whole steps.

Example: Find 4 whole-steps above "C"

Process:

If "C" is Zero, "D" is One, "E" is Two, and "F#" is Three,
Then "G#" must be Four.

Scales

In music, the tones of a scale are ordered according to their pitch. Scales can be arranged in ascending or descending order. For the purposes of this reference guide and cheat sheet, we will discuss ascending scales.

There are five scales that you should familiarize yourself with. I will provide the formulas for all five, and will explain all of them in person at your lesson.

The Scale Formulas

W = Whole Step. H = Half Step. W+H = Whole Step plus a Half-Step, or three half-steps. Root = The note upon which the scale is built.

Major	Root W W H W W W H
Minor	Root W H W W H W W
Harmonic Minor	Root W H W W H W+H H
Melodic Minor	Root W H W W W W H
(Minor) Blues	Root W+H W H H W+H W

Intervals

Intervals in music describe the distance between any two notes on the piano keyboard. Intervals are typically based on scale degrees.

Interval	Abbreviation	Steps
Unison	Unis	None (Same Note)
Minor Second	m2	Half
Major Second	M2	Whole
Augmented Second	aug2	1 1/2
Minor Third	m3	1 1/2
Major Third	M3	2
Perfect Fourth	P4	2 1/2
Augmented Fourth	aug4	3
Diminished Fifth	dim5	3
Perfect Fifth	P5	3 1/2
Augmented Fifth	aug5	4
Minor Sixth	m6	4
Major Sixth	M6	4 1/2
Augmented Sixth	aug6	5
Minor Seventh	m7	5
Perfect Octave	P8	6
Minor Ninth	m9	6 1/2
Major Ninth	M9	7
Augmented Ninth	aug9	7 1/2

Building Chords to Half-Step

In music, a chord is two or more notes played together at the same time. It is important to point out that, while related, this explanation is *not necessarily,* related to the topic before this: "Intervals". Intervals describe the distance between two given notes on the keyboard. A chord is built with intervals, but is actually *played all together at once.*

The half-step method of creating chords is simple, and I choose to use it to teach chords because it does not require an understanding of scales. Having the knowledge of building chords to scale degree is also helpful, but I teach that later on in the student's lessons.

The formulas are presented in this general format:

ROOT - NUMBER OF HALF STEPS - NUMBER OF HALF STEPS - ETC.

I will provide an example of how to use this system by walking you through the process of building a C Minor (or Cm) Chord.

Example: *Build a C Minor (Cm) Chord.*
Formula = Root 3 4

Process: *Identify the Root. In this case, the root is "C".*
Count 3 Half-Steps Above "C"

3 Half-Steps Above "C" is "Eb"

Count 4 Half Steps Above "Eb"

4 Half Steps Above "Eb" is "G'

Solution: *Therefore, a C Minor (Cm) chord is constructed with the following tones: "C" , "Eb" and "G".*

When you play "C" , "Eb" and "G" all at once, you have a C Minor (Cm) Chord.

Symbol	Type	Formula
(NO SYMBOL, JUST A LETTER)	Major	Root 4 3
m	Minor	Root 3 4
+ *or* aug	Augmented	Root 4 4
0 *or* dim	Diminished	Root 3 3
sus2	Suspended Second	Root 2 5
sus4	Suspended Fourth	Root 5 2
(add9)	Added Ninth	Root 4 3 7
m(add)9	Minor Added Ninth	Root 3 4 7
6	Six	Root 4 3 2
m6	Minor Six	Root 3 4 2
6/9	Six Add 9	Root 4 3 2 5
m6/9	Minor Six Add 9	Root 3 4 2 5
7	Seven	Root 4 3 3
dim7	Diminished Seven	Root 3 3 3
7sus4	Seven Suspended Fourth	Root 5 2 3
Maj7	Major Seven	Root 4 3 4
m7	Minor Seven	Root 3 4 3
m(Maj7)	Minor Major Seven	Root 3 4 4
Maj7b5	Major Seven Flat Five	Root 4 2 5
min7b5	Minor Seven Flat Five	Root 3 3 4
7#5	Seven Sharp Five	Root 4 4 2
7b5	Seven Flat Five	Root 4 2 4
7b9	Seven Flat Nine	Root 4 3 3 3
7#9	Seven Sharp Nine	Root 4 3 3 5
7#5(b9)	Seven Sharp Five Flat Nine	Root 4 4 2 5
9	Nine	Root 4 3 3 4
Maj9	Major Nine	Root 4 3 4 3
m9	Minor Nine	Root 3 4 3 4

Scale Degrees

In music, the tones of a scale are ordered according to their pitch. In an effort to easily understand what each pitch in a scale is, we have assigned scale degrees (or numbers) to each note in the scale.

Understanding this systems lays the foundation for understanding what someone means when they say "you just played the four chord. Can you please replace that with the two chord?" or "Look at measure 43, beat 2. Do you see how the sixth is being voiced below the two? It is important that you play that".

Every tone in a scale has a number (or degree) associated with it.
Understanding this system is actually quite easy. Let's use a C Major scale as an example:

C D E F G A B C

Since "C" is the first note of the scale, "C" is one. Following this process, we can identify "F" as four, "A" as six, and "B" as seven. When we get to the "C" that completes the scale (or is one octave above the starting note), we have two options. It can either continue the pattern and be "8", or it can be identified as "1", since "C" would then start the scale over again if you were to keep ascending.

Let's take another scale as an example. If you are in a different key, such as the key of "D", "C" is no longer 1, because we are not in the key of "C". In the key of "D", "D" is 1. On the following page, I have produced a reference for all of the Major keys (or scales).

Keep in mind, I am using enharmonic equivalents for the following examples. Enharmonic Equivalent = Same Note, different name. For example, since C# and Db are the same note, you may use the C# example to understand the Db scale. While theoretically incorrect, doing this is alright for the purposes of this reference guide and cheat sheet.

C	D	E	F	G	A	B	C
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

C#	D#	E#	F#	G#	A#	C	C#
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

D	E	F#	G	A	B	C#	D
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

D#	E#	G	G#	A#	C	D	D#
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

E	F#	G#	A	B	C#	D#	E
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

F	G	A	Bb	C	D	E	F
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

F#	G#	A#	B	C#	D#	F	F#
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

G	A	B	C	D	E	F#	G
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

G#	A#	C	C#	D#	F	G	G#
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

A	B	C#	D	E	F#	G#	A
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

A#	C	D	D#	F	G	A	A#
1	*2*	*3*	*4*	*5*	*6*	*7*	*8/1*

B	C#	D#	E	F#	G#	A#	B
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*

We can also apply scale degrees to chords. "Natural" chords are built (on the staff) in line, line, line or space, space, space form. As an example, if you were to build a basic chord starting on "E" on the staff (in the key of C, meaning no sharps or flats), you would start on "E", which is on a line. If you fill in the next two lines above it, you would have "E + G + B". If you play these three notes together, you would have an E Minor chord.

If you build natural chords to the Major scale degrees, you would find that in every case:

1 is a Major Chord
2 is a Minor Chord
3 is a Minor Chord
4 is a Major Chord
5 is a Major Chord
6 is a Minor Chord
7 is a Diminished Chord
8/1 is a Major Chord