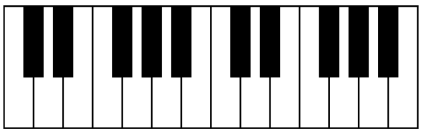
Interval Size in Semitones

It is important to memorize the number of semitones associated with common specific intervals, as this will help you become faster and more accurate at *interval spelling* (also called *interval construction*). Figure 1 shows a two-octave piano keyboard diagram that may be used for counting semitones.

Figure 1. A two-octave piano keyboard diagram



Using the keyboard above, how many semitones are *spanned* by a M2, M3, P5 & P8, respectively? (You may begin on any key, but a C key is always a good place for beginners to start.) As shown in Figure 2, the answers are 2, 4, 7 & 12, respectively. Specific intervals that span the same number of semitones are said to be *enharmonically equivalent*.

Figure 2. Specific interval size in semitones

Interval name	Semitones
P1	0
m2	1
d3	2
M2	2
A2	3
m3	3
M3	4
P4	5
A4	6
d5	6
P5	7
A5	8
m6	8
M6	9
d7	9
A6	10
m7	10
M7	11
P8	12

Interval transformation is a related concept that will also help increase the speed and accuracy of your interval spelling. Figure 3 shows the *semitonal connections* between P, M, m, A and d intervals.

Figure 3. Interval transformation

a. diminished (d) ⟷ perfect (P) ⟷ augmented (A)

b. diminished (d) ⟷ minor (m) ⟷ major (M) ⟷ augmented (A)

The arrows in Figure 3 indicate *expansion* (→) and *contraction* (←) of an interval by a semitone, respectively.[1] For example, expanding a P5 (7 semitones) by a semitone produces an A5 (8 semitones), whereas contracting a P5 produces a d5 (6 semitones); Expanding a m3 (3 semitones) by a semitone produces a M3 (4 semitones), whereas contracting a m3 produces a d3 (2 semitones); and so on.

[1] Expansion of an augmented interval by a semitone produces a *doubly-augmented* interval. Contraction of a diminished interval by a semitone produces a *doubly-diminished* interval.