

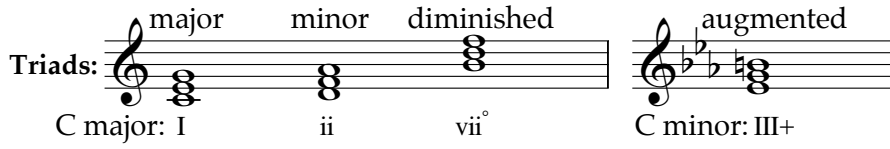
ROMAN NUMERALS

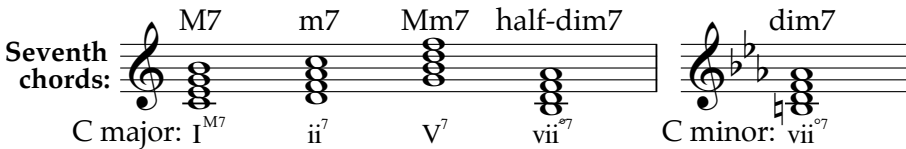
Roman numerals

In the **roman numeral system**, **I (or i)** means one, and **V (or v)** means five. Placing a one to the right of a number adds one to the value. Placing a one to the left subtracts one. So II = 2, since I + I = 1 + 1 = 2. Similarly, III = 3. The number IV means 4, since the I is to the left of the V, and 5 - 1 = 4. VI means "5 add 1," or 6, and VII means "5+1+1," or 7.

Roman numerals and chord quality

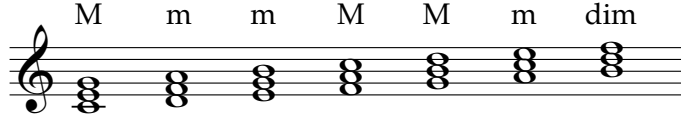
Harmonic analysis uses roman numerals to indicate chords in the music. The **numeral** indicates the scale degree (scale step) of the **root** of the chord. The **format** of the roman numeral indicates the chord quality, as follows:

Triads: 

Seventh chords: 

Triad roman numerals in major keys

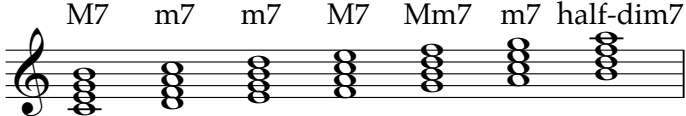
In major keys, I, IV, and V are major; ii, iii, and vi are minor; and the leading tone chord is diminished. Notice how the format of each roman numeral indicates its chord quality.



C major: I ii iii IV V vi vii°

Seventh chord roman numerals in major keys

In major keys, I and IV are major seventh chords; ii, iii, and vi are minor seventh chords; V is a major-minor seventh; and the leading tone seventh is half-diminished. Again, study how the format indicates each chord quality.



C major: I^{M7} ii⁷ iii⁷ IV^{M7} V⁷ vi⁷ vii^{o7}

Triad roman numerals in minor keys

In minor keys, i and iv are minor, III, V, VI are usually major, and the supertonic and leading tone triads are diminished. Composers almost always wrote in the leading tone accidental (below, B natural) to make the dominant triad major and the leading tone triad diminished.

c minor: i ii° III iv V VI vii°

Seventh chord roman numerals in minor keys

In minor keys, i and iv are minor seventh chords; III and VI are major seventh chords; V is a major-minor seventh; the supertonic is half-diminished; and the leading tone seventh is fully-diminished.

c minor: i⁷ ii^{°7} III^{M7} iv⁷ V⁷ VI^{M7} vii^{°7}

Variations in minor keys

Because scale steps six and seven are sometimes raised in minor (see 2.4), there are several less common options for harmonies using those notes.

rare! subtonic: rare! #vi^{°7}
 c minor: III+ VII (goes to III) v

Inversion numbers

Inversion numbers (see 4.1 and 4.4 for inversions) represent intervals above the lowest note; 5 means a fifth above the low note, 3 means a third, and so on. The notes may appear in any octave in any order above the low note, but always use simple interval numbers (less than 8) for the inversion.

Root position	First inversion	Second inversion	Root position	First inversion	Second inversion	Third inversion
C major: V ₃ ⁵	V ₃ ⁶	V ₄ ⁶	V _{3=B} ^{7=F} _{5=D}	V ₃ ⁶ ₅	V ₃ ⁶ ₄	V ₂ ⁶ ₄
Use these abbreviations:			Count down: 7, 6-5, 4-3, 2			
C major: V	V ⁶	V ⁶ ₄	V ⁷	V ⁶ ₅	V ⁴ ₃	V ⁴ ₂ or V ²