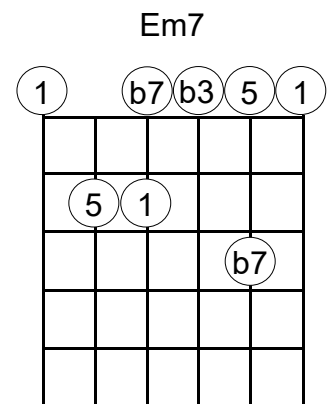
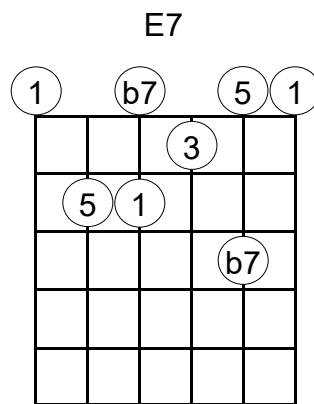
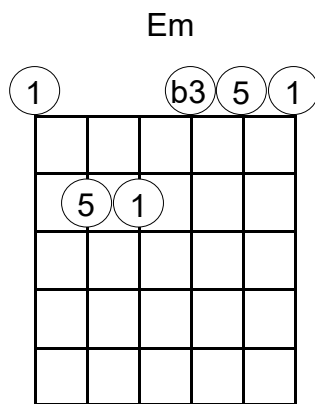
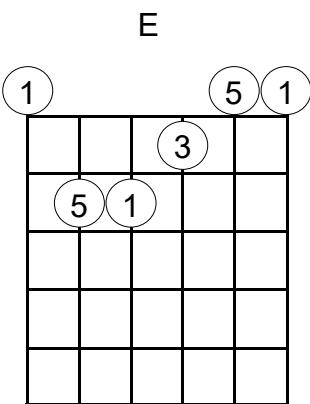


# How Chords Are Built

Chords are built from scales. In the PDF labeled **Music Theory 1**, we show how all musical structures can be explained with numbers called intervals (refer to the PDF for a list of chord and scale formulas). We use the **Interval Ruler** shown below and the list of chord formulas to both understand the chords we already know and discover new ones. Most chord diagrams show fingering numbers and depending on the source material (various books, charts, teachers, etc.) those fingering choices on some chords will differ. Some of these differences are beneficial depending on what you play either before the chord, during or after it.

In order to facilitate learning how chords are built, the charts shown here are focused on interval numbers and in some cases give you multiple choices on a given string for creative options. Chord formulas can be used in a few ways. The shapes you choose can be strummed, picked with a picking or fingering pattern or played melodically as an arpeggio, like a scale or lick. You don't always have to play every string and every note possible inside a diagram. The point is to learn where things are so you can have creative choices. You can use the intervals from more than one chord to create slash, hybrid or extended chords. Watch for upcoming video lessons on these more advanced chord concepts on the website. This site is designed to be a continuously growing source of learnable, useful information for you to return to and get more out of as you grow as a musician and guitarist.

1	b2	2	b3	3	4	#4/b5	5	#5/b6	6	b7	7	1
	(b9)	(9)	(#9)		(11)	(#11)		(b13)	(13)			
										(bb7)		



# Chord Formulas

## Majors

Major - 1 3 5

Major Flat 5 - 1 3 b5

Major 6 - 1 3 5 6

Major 7 - 1 3 5 7

Major 9 - 1 3 5 7 9

Add 9 - 1 3 5 9

6/9 - 1 3 5 6 9

Suspended 4 - 1 4 5

Suspended 2 - 1 2 5

Power - 1 5

## Minors

Minor - 1 b3 5

Minor 6 - 1 b3 5 6

Minor 7 - 1 b3 5 b7

Minor/Major 7 - 1 b3 5 7

Minor 9/Major 7 - 1 b3 5 7 9

Minor 9 - 1 b3 5 b7 9

Minor 6/9 - 1 b3 5 6 9

Minor 11 - 1 b3 5 b7 9 11

**Diminished** - 1 b3 b5

**Diminished 7** - 1 b3 b5 bb7

**Half Diminished** (Minor 7 Flat 5) - 1 b3 b5 b7

**Augmented** - 1 3 #5

## Dominants

Seventh - 1 3 5 b7

Seven Sus 2 - 1 2 3 b7

Seven Sus 4 - 1 4 5 b7

Seven Aug 5 - 1 3 #5 b7

Seven Flat 5 - 1 3 b5 b7

Seven Flat 9 Aug 5 - 1 3 #5 b7 b9

Ninth - 1 3 5 b7 9

Ninth Aug 5 - 1 3 #5 b7 9

Ninth Flat 5 - 1 3 b5 b7 9

Ninth Flat Aug 5 - 1 3 #5 b7 b9

Flat Nine - 1 3 5 b7 b9

Sharp Nine - 1 3 5 b7 #9

Ninth Aug 11 - 1 3 5 b7 9 #11

Eleven - 1 3 5 b7 9 11

Sharp 11 - 1 3 5 b7 9 #11

Thirteen - 1 3 5 b7 9 11 13

Thirteen Flat 9 - 1 3 5 b7 b9 11 13

Thirteen Flat 9 flat 5 - 1 3 b5 b7 b9

Thirteen Sharp 11 - 1 3 5 b7 9 #11 13

# The CAGED System

There are 2 main points of view in dealing with the basic open/movable shapes on the fretboard. One is the **CAGED System**. A **C** shape with its root note on **C** is a **C** chord. An **A** shape with its root note on **C** is a **C** chord. The same goes for the other shapes. The **CAGED System** shows us how these 5 shapes connect up and down the guitar neck. The **C** shape overlaps with the **A** shape. Notice how both shapes share the root (1) on the 5th string and the 5th on the 1st string. If we use an open **C** chord as an example, our **A** shape would start at fret 3, overlapping with the open **C** chord. The lower end of the **G** shape overlaps with the upper end of the **A** shape at fret 5 putting the **G** shape's **E** string root note on **C** at fret 8. There, the **E** shape overlaps with the **G** shape. On fret 10, the **D** shape overlaps with the **E** shape. Finally, at fret 12, the movable **C** shape overlaps with the **D** shape and the whole cycle starts again. For other chords, the shapes simply move up or down the fretboard so the root notes line up.

All chords are essentially derived from various scales and modes. You can see them as "hidden" inside the scale patterns that overlap, or interlock, up and down the guitar fretboard. It's highly recommended that you practice playing up and down the **CAGED system** and be able to identify them inside the scale patterns.

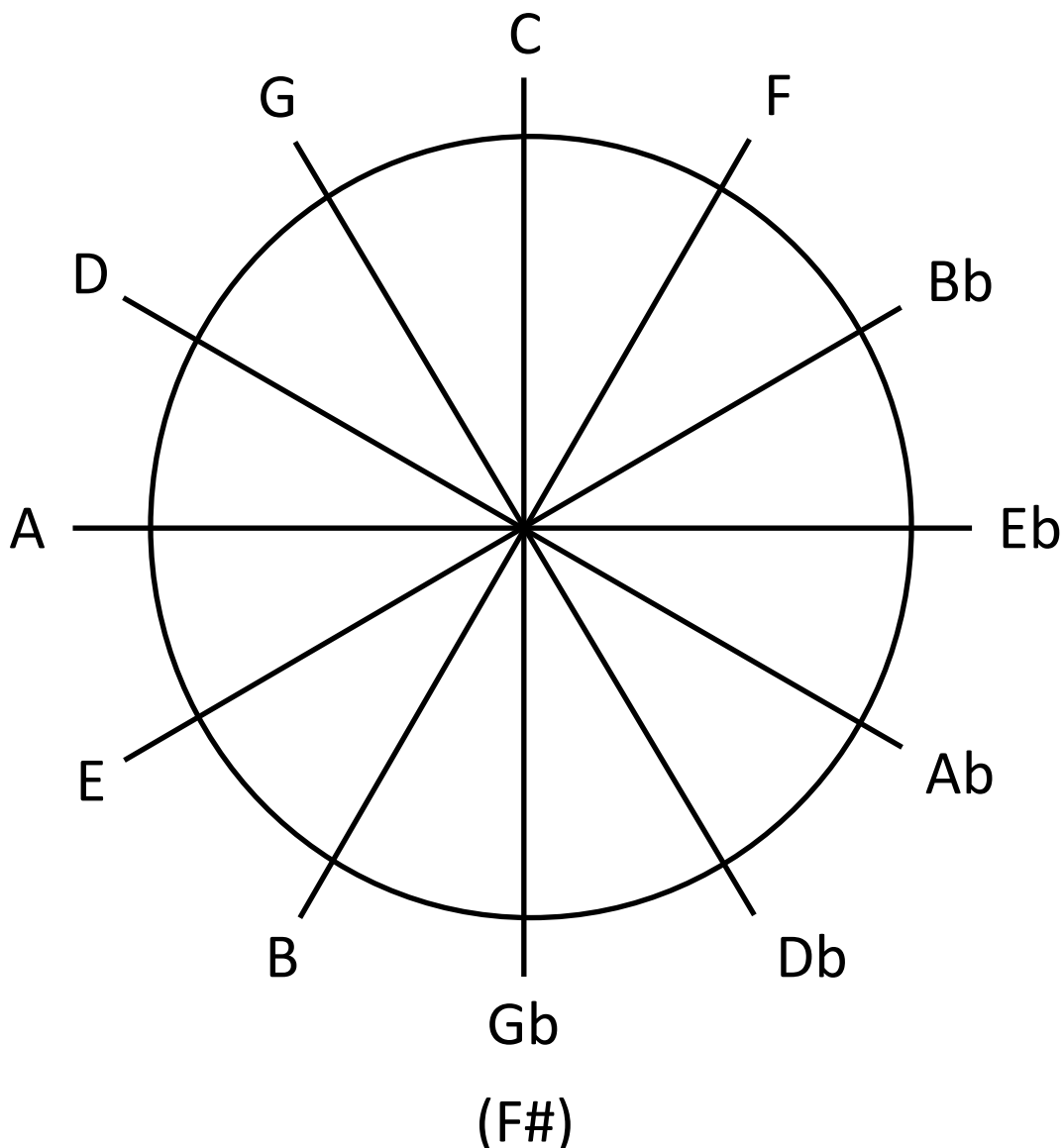
C	A	G	E	D
Cm	Am	G	Em	Dm
C7	A7	G7	E7	D7

# The Circle of Fourths

In music theory, we often use a device called the **Circle of Fourths** (or **Circle of Fifths** depending on which direction you travel through the circle). We can use it to learn the keys with one side being sharp keys (**G, D, A, E, B, F#**) and one side being flat keys (**F, Bb, Eb, Ab, Db, Gb**). We can also use it as root notes for transposing chords within a song or for learning how the initial open chord shapes spiral up the fretboard to create barre chords or movable shapes. Because the guitar is tuned in fourths, it's the perfect tool to relate to how the fretboard is designed and navigated.

How it works: We can start with **C** (which has no sharps or flats), calling **C - 1, D - 2, E - 3, F - 4, G - 5, A - 6** and **B - 7**. You can see how **F** is the fourth note in the key of **C** (also thought of as the **C Major** scale). In the key of **F** (which is the next key or note in the circle), **F** becomes 1, **G - 2, A - 3, Bb - 4, C - 5, D - 6, E - 7**. Therefore, **Bb** is the fourth note in the key or major scale of **F**. In the key of **Bb**, **Eb** is the fourth note and **Ab** is the fourth note in the key of **Eb** and so on.

Since the guitar is tuned in fourths, we start with the lowest note, **E** which gives us various **E** shaped chords. Then, moving up a fourth (from string 6 to string 5) we have various **A** shaped chords. Moving up and fourth we have **D** shaped chords. The next in the spiral are **G** shaped chords then **C** shapes. Moving up the neck, we take those same chord shapes and change the fingerings to turn them into movable chords which compensate for the open strings. Usually, that means using your index finger to barre like a capo to cover where the open strings were. Some chords just require a fingering change or avoid playing certain strings.



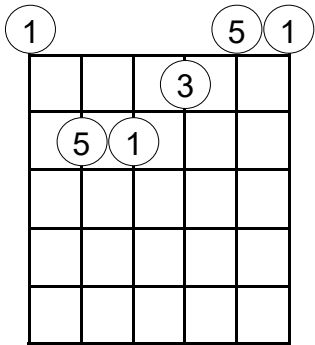
# The Chord Spiral

The second point of view I like to refer to as the **Chord Spiral** which uses the “**Circle of 4ths**” to spiral the chord shapes up the neck one fret at a time. Use the **Circle of 4ths** page for a good reference image.

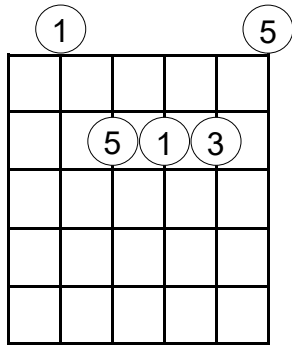
As we pass through the circle, at fret one we have open E moving up to **A** which moves up to **D**, then **G** and finally **C**. Then, those shapes continue the spiral by moving up one fret at a time. At fret one the **E** shape becomes an **F** chord. **A** becomes **Bb**. **D** becomes **Eb**. **G** becomes **Ab** and **C** becomes **Db**. At fret two you get: **Gb (F#)**, **B**, **E**, **A**, **D**. At fret 3: **G**, **C**, **F**, **Bb**, **Eb** and so on, spiraling through the circle, up the fretboard.

The shapes below belong to the three most commonly used chord families, Majors, Minors and Dominants. Within each family are a variety of chords that use the main numbers you see here plus additional or slightly altered interval numbers. They simply become variations on the 5 main chord shapes shown below.

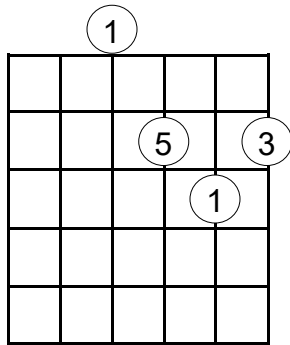
E



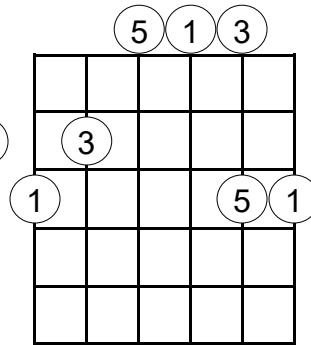
A



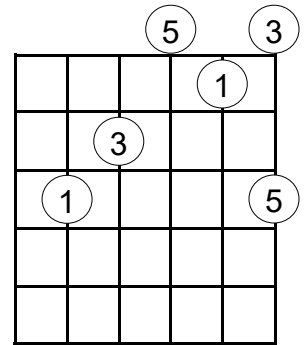
D



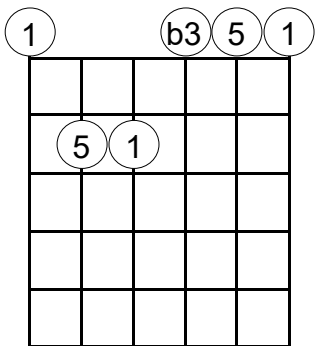
G



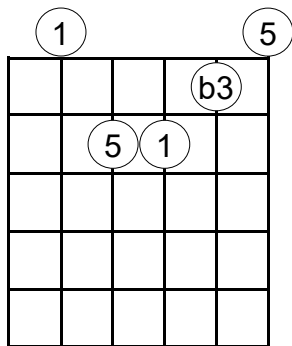
C



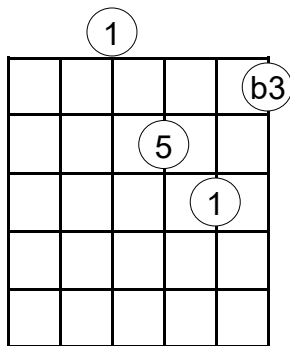
Em



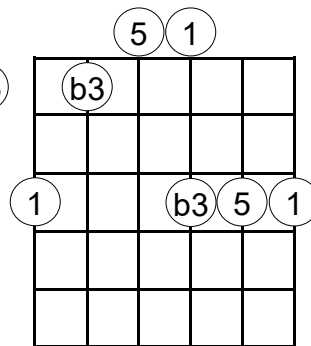
Am



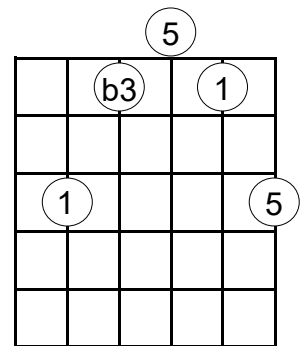
Dm



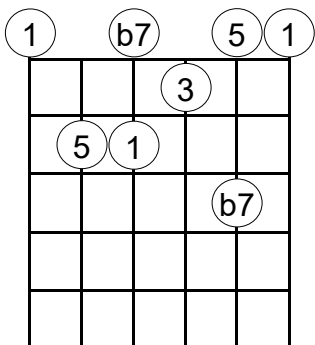
Gm



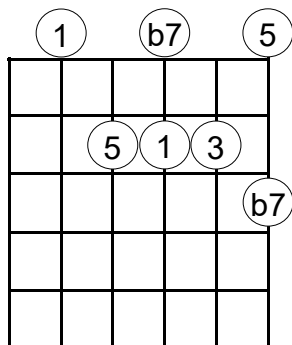
Cm



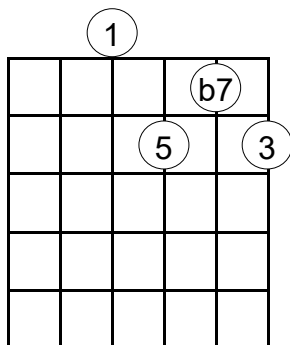
E7



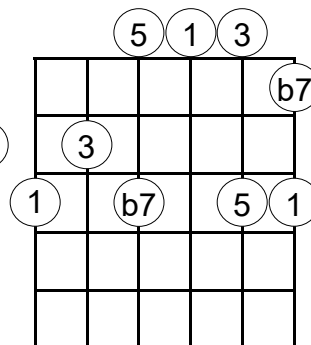
A7



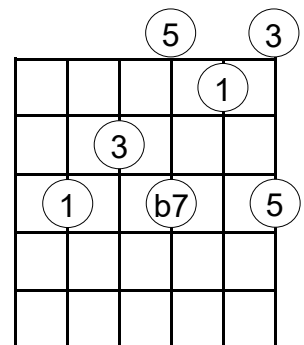
D7



G7

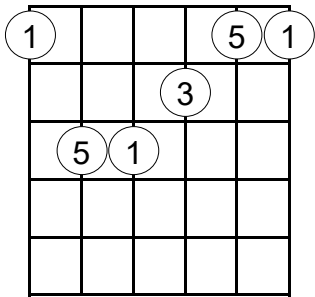


C7

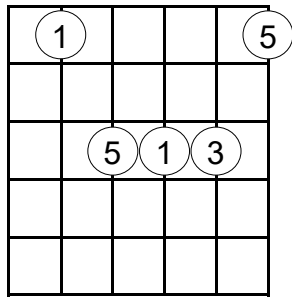


Here we are with our 5 original open chord shapes moved up to start at fret one...

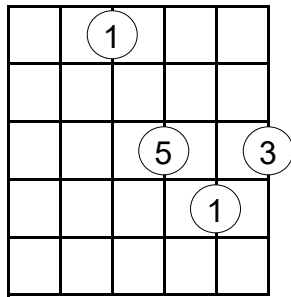
F



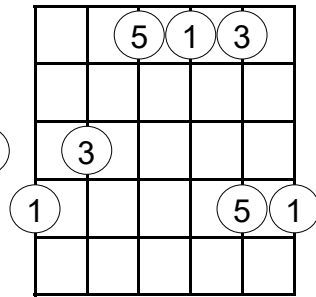
Bb



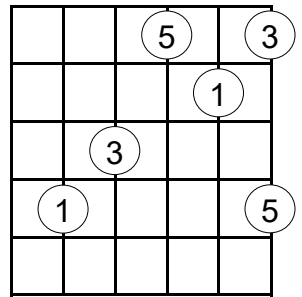
Eb



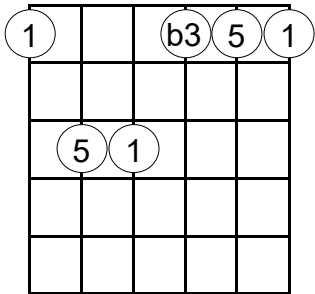
Ab



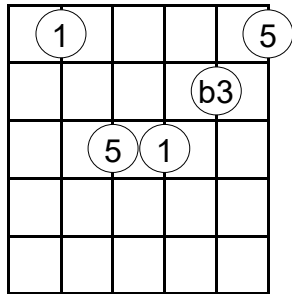
Db



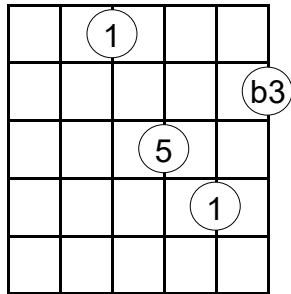
Fm



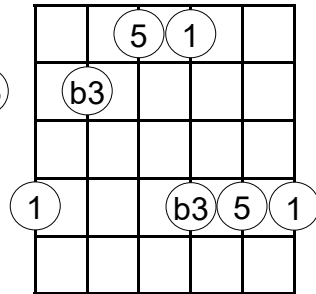
Bbm



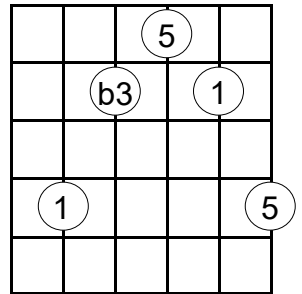
Ebm



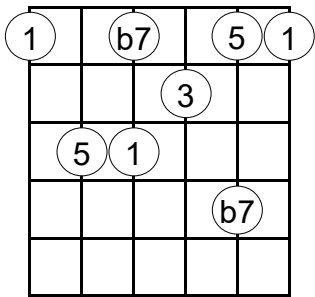
Abm



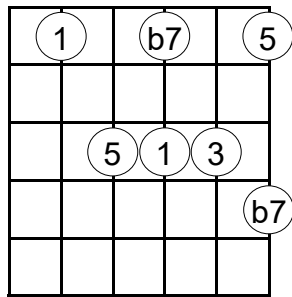
Dbm



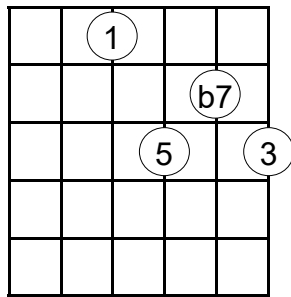
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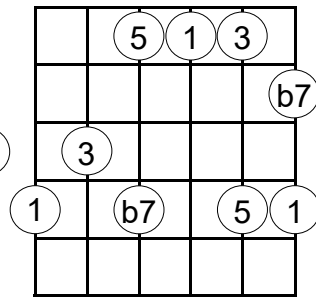
Bb7



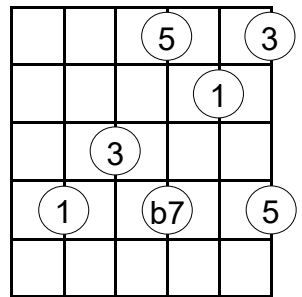
Eb7



Ab7

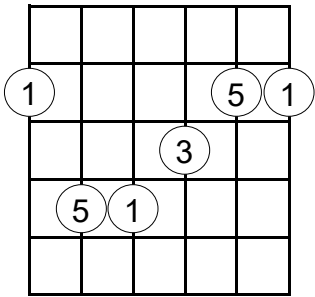


Db7

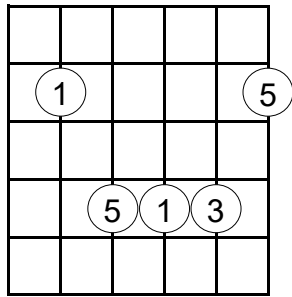


Here we are with our 5 original open chord shapes moved up to start at fret two as the spiral continues...

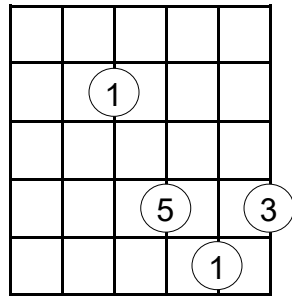
Gb



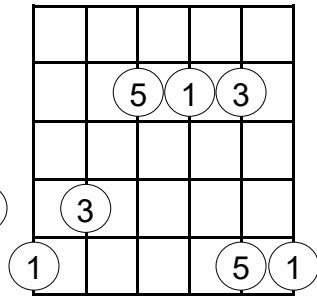
B



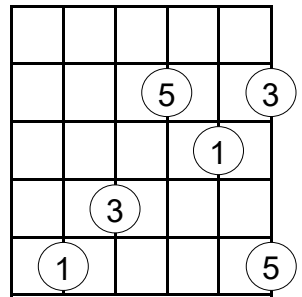
E



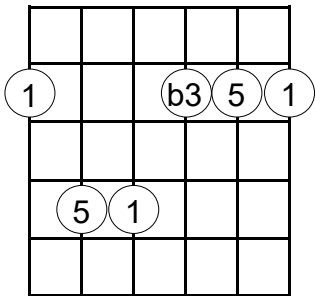
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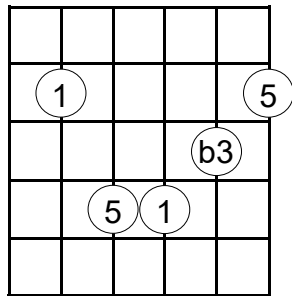
D



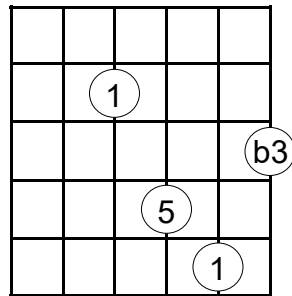
Gbm



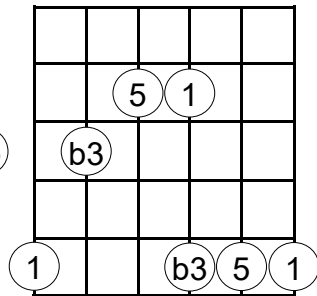
Bm



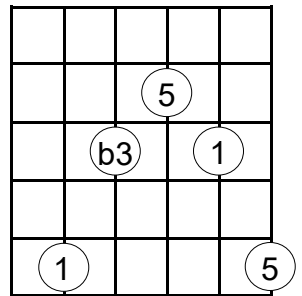
Em



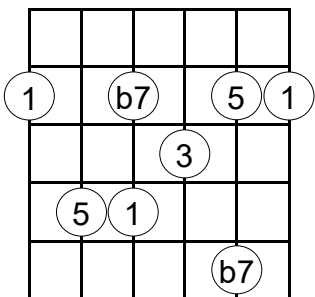
Am



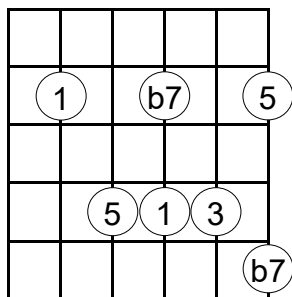
Dm



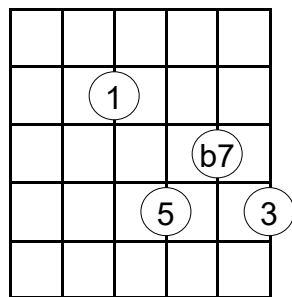
Gb7



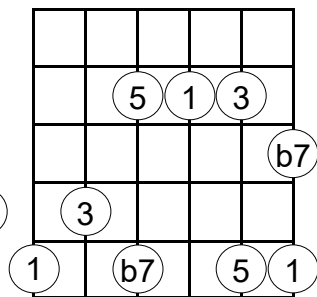
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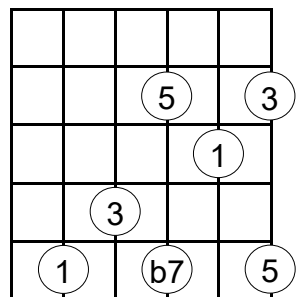
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A7



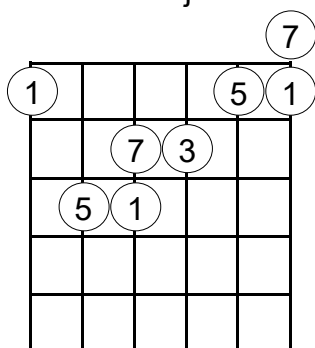
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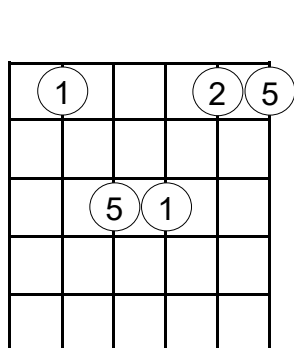
# Adding More Intervals

We can discover and play more chords by adding or altering intervals to these initial 5 shapes. The more chord formulas you memorize, the more chords you can create. Remember that chords can be played melodically like scales (arpeggios) and some voicings can have multiples note choices on certain strings so we show multiple intervals on some strings to show how to achieve this approach in a given shape or position. On guitar, in some circumstances, you may need to leave out one or more intervals to create a given chord in some positions. So, we often choose to omit the intervals we creatively decide are less necessary for the sound we want. In some cases, the root note (the "1,") may not be the lowest pitched or bass note of the voicing (chord shape) or we may choose to leave out the root altogether knowing it will be played by another instrument like the bass or keyboards or another guitar or even singer. Some of these chord voicings might be really challenging to play at first and you might need to simplify them or find a different position and voicing to play the chord. In any case, this is how chords are built on the guitar fretboard. You can start with one of the 5 main shapes or you can start from a scale pattern and simply choose chord intervals that give you the sound you want or need.

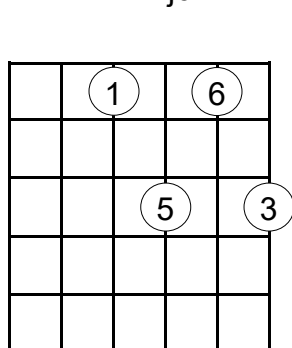
Fmaj7



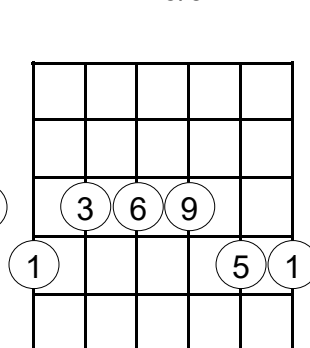
Bbsus2



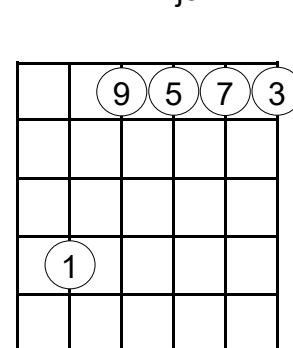
Ebmaj6



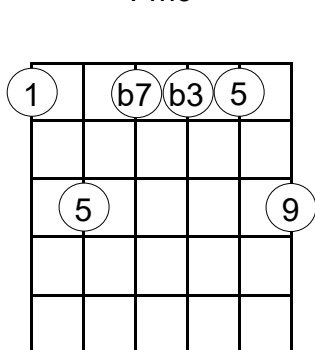
Ab6/9



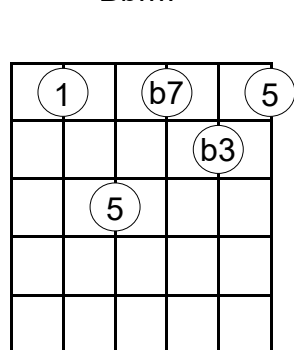
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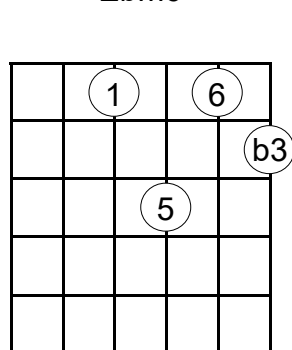
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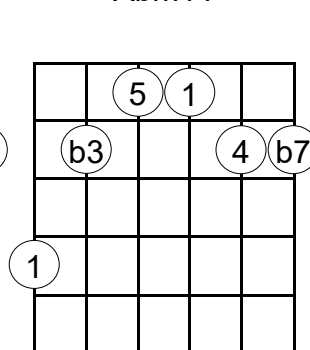
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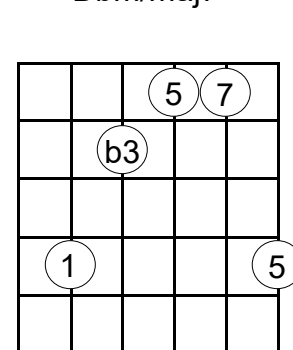
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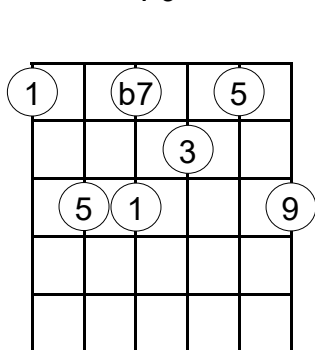
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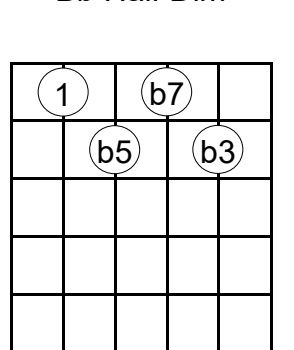
Dbm/maj7



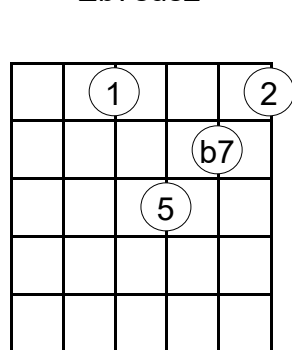
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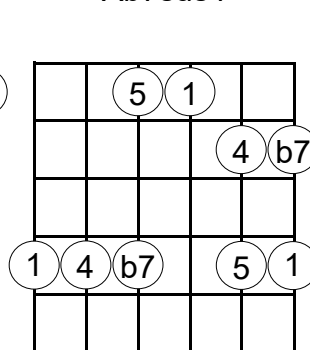
Bb Half Dim



Eb7sus2



Ab7sus4



Db(b9)

