community guitar

Music Theory Primer

For Community Guitar
by Andrew Lawrence

communityguitar.com

Introduction

"Welcome...you made it!"

This greeting, or something similar, is what all guitarists who venture into the world of music theory deserve to hear, accompanied by a gentle but enthusiastic clap on the back. We need the encouragement because most of us feel like we're in over our heads as soon as our big toes enter these cold, forbidding waters. Maybe your *hands* have been working the fretboard for 30 years, but what's your *head* been up to all that time? Most likely it's been thinking about the lyrics or trying to remember the chord progression. But really probing the music from a theoretical perspective? Not so likely.

We get by for years and years without an introduction to music theory because, on guitar at least, you can have a lot of fun without it. So long as you are content to put your fingers where you are told – by a friend, an author, a video presentation, whatever – you needn't have a clue what your hands are up to.

But then, one fateful day, your wayward fingers stray off the beaten path. You find yourself trying to figure something out "by ear". You noodle. You explore. You play.

Now, my friend, you're done for. Congratulations. You will never again be entirely content with playing by rote. You will still learn from others, of course, but now the point will be to make the music you are learning your own somehow. You will take things in and then tweak them (the way you would a recipe that's *almost* right) or combine them in unique ways, or draw a new conclusion from some familiar starting point. This is the game of creative musicianship, and it has no end.

It's also the game of Community Guitar. After all, our goal is not to prepare set pieces for performance as guitar ensembles, but to jam. Although all our songs are arranged in considerable detail, the purpose of the arrangements is to demonstrate what a guitarist at a certain level of ability might come up more or less spontaneously in a group setting. You *do* want to get those arrangements under your fingers so the technical challenges of playing at that level become less and less an obstacle. But to come up with something comparable of your own you'll need more than mere physical skill; you'll need insight, and that's where a little theory can save you a lot of bushwacking.

Every Community Guitar arrangement is accompanied by a series of exercises that will help get your head on board with your hands. This primer cover the essential theory you'll need in order to do the exercises at Level 1. If you already know everything covered within, congratulations. If not, it shouldn't take you long to work through. Ideally you would have the opportunity to go over this material and have "the basics" before even beginning a class. If that hasn't been the case for you, though, don't worry. Just set aside the time as soon as possible to go through it and check in with your teacher wherever you need a hand.

The primer is organized as a series of exercises, the answers to which are found at the end. My suggestion is that you do an exercise, check how you did, then move on to the next. It doesn't matter whether you can do things quickly or easily at the outset. That will happen naturally as you make use of this material again and again in written exercises and class discussions. But first, you've got to get "in the game". Welcome...You made it!

The Musical Alphabet and Intervals

There are only seven letters of the alphabet used to name notes: A, B, C, D, E, F and G. These letter names are sometimes modified by adding a sharp (#) or a flat (b), but for these first few exercises we'll just work with the unadorned letter-named notes, which are called *naturals*. To find these notes on the fingerboard you only need to know two things:

- The name of the note on each open string.
- The distance between each pair of adjacent naturals.

We'll look at the open strings in just a minute. First, let's get clear on the distance between each pair of notes. This distance is called an interval. To name the notes on the fingerboard you need only concern yourself with two such intervals:

- A *half* step, which on the guitar is equivalent to moving up or down by one fret.
- A *whole* step, which is the equivalent of moving two frets.

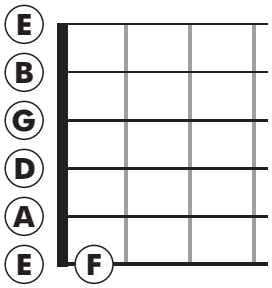
It would be much easier to find the notes on the fretboard of the guitar if there was the same interval between each pair but, alas, this is not the case. Here's the rule:

- There is only a half step from *B to C* and from *E to F*.
- There is a whole step between every other pair of adjacent naturals.

Now let's put that information to work.

Exercise 1

The diagram to the right shows the first few frets of the guitar fingerboard, including the note name of each open string. On each string, indicate the position of the next note in the musical alphabet as we have done on the low E string. Ask yourself, "Is the next note up a whole or half step?"



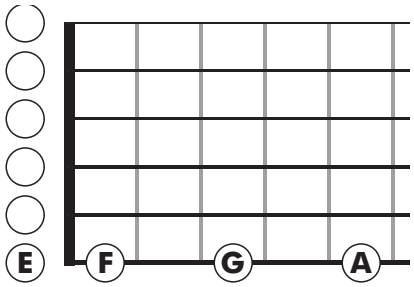
Where is F on this string?
Where is C on this string?
Where is A on this string?
Where is E on this string?
Where is B on this string?

Exercise 2

The diagram below shows 12 frets of the high E string. Moving up from the open E, indicate the position of each note in the musical alphabet in succession – F, G, A, B, C, D and E – referring to the rule above whenever necessary.

Exercise 3

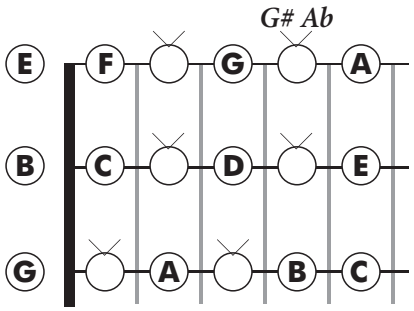
The diagram to the right shows the first five frets of the fingerboard. Use it to show the location of all the naturals, (that is, the notes without sharps or flats) up to the fifth fret, starting with the open strings. The low E string is completed already by way of example.



Once the diagrams above are complete, one glance at any one of them makes clear that the 'naturals' are not all the notes on the fingerboard. What, for example, do we call the note on the fourth fret of the high E string? Since it falls between G and A, we can name it relative to either one of these notes by adding a sharp (#) or a flat (*b*). The sharp indicates that a note is *raised* by one half step, (the equivalent of 1 fret), whereas a flat *lowers* it the same amount. So the note in question, (E string, 4th fret), could be called either G# or Ab, depending on the musical context. In the next exercise you'll put this information to work.

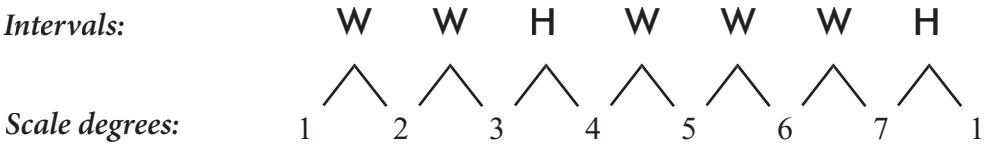
Exercise 4

The diagram to the right shows the first five frets of the three high strings of the guitar. The natural notes have already been provided. You fill in the gaps by indicating both the possible names for any unnamed note as we've done for the G#/Ab.



The Major Scale

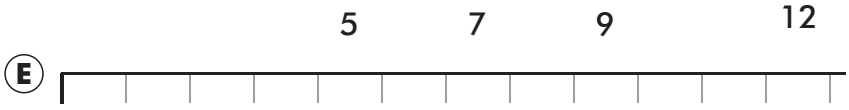
Now that you understand how the notes are named and where to find them, let's get them organized into usable groups, starting with major scales. A major scale is a series of seven notes (eight if you count the first note twice, at both ends of the scale) that are organized according to a specific series of whole and half step intervals. The diagram below shows this series, which you should memorize. In the diagram, **W** indicates a whole step; **H** indicates a half step. Instead of using note names, for now the notes of the scale are indicated by the numbers 1–7, which are referred to as scale degrees.



Let's use this information to find a couple different major scales on the guitar.

Exercise 5

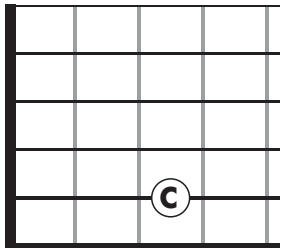
The diagram below shows the first 12 frets of the high E string. Consider the open E to be your first scale degree. Following the pattern of whole steps and half steps discussed above, indicate the position of each successive note of an E major scale on that string. (There's no need to name them at this point.) Then play the whole series of notes on your guitar. You'll know you got it right if it sounds like the familiar "do, re, mi, fa, so, la, ti, do".



On guitar, it is relatively easy to "see" the distance between notes — the interval — so long as one stays on one string in this way. It's trickier, though, when we start moving across strings, as we will do in the next exercise.

Exercise 6

A C major scale is the only major scale with no sharps or flats. It uses only naturals: C, D, E, F, G, A, B, C. Use the empty fretboard diagram to sketch out a C major scale, starting on the low C provided and using open strings whenever possible.



Before we go any further let's make sure you understand this concept of scale degrees. Here's a simple exercise based on your understanding of the C major scale.

Exercise 7

After each letter name below, express it as a scale degree of the C major scale. C, for example, is "1".

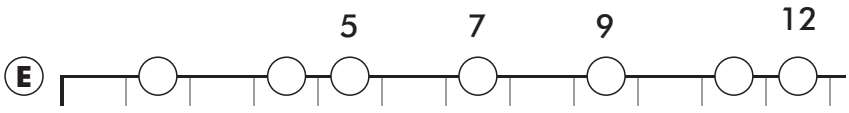
C=1 G =___ F= ___ D= ___ A=___ E=___ B=___

Once the notes have been organized into a specific scale we can name them more precisely. Remember, when we first discussed in the naming of notes we said that a note that falls between two naturals can be named relative to either one of them by use of a sharp or a flat. For example, the note on the second fret of the high E string falls between F and G. As long as there is no musical context for that note we can call it either F# or Gb and either name is equally correct.

When that note appears in a scale, however, it has a musical context that determines which of those names makes the most sense. In a major scale, every letter of the musical alphabet is used, and used only once. In other words, no letters are skipped, and no letters are used twice. If the first note is E, the second will be some kind of F, the third will be some kind of G, the fourth will be some kind of A, etc. Now, to return to the note we were discussing above, since the note on the second fret of the E string is the second degree of an E major scale, it has to be some kind of F, so F# is the correct name for that note in this context rather than Gb. The next exercise will give you a chance to practice putting this insight to work.

Exercise 8

The diagram below shows the position of each note in an E major scale on the high E string. Name the notes, using the guidelines discussed above.



Major Scales and Keys

Although there are many major scales you could learn, in practice there are five that will probably be most useful to you on guitar -— at least in open position — because in standard tuning there are certain major keys that are easier to play in than others. But before we go into more detail, let's make sure you understand what we mean by a musical *key*.

For our purposes, the key identifies the chord that offers *the final point of rest* for a piece of music. If the chord progression naturally comes to rest on a C major chord, the song (or section of a song) is in the key of C major. A song could be in a minor key as well, but for the moment we'll stick with major. Try this next exercise.

Exercise 9

Strum each of the chords in the following progression four times, playing them in the order shown. Go through the entire chord progression two or three times to get the sound of the chords in your ears. Then stop playing on any one of the chords. Start again and repeat the process, this time stopping on a different chord. Do this four times in all, stopping on each of the chords. Then answer this question: which final chord gives the greatest sense of completion or resolution? Here's the chord progression: ***C – D7 – G – Em***

Virtually any song made up of these four chords will feel somehow unfinished if you stop on any chord other than the G. G is "home", the place of rest or resolution for this set of chords. So we say the song is in the key of G major and call G the *tonic* chord. The root of that chord — the note G — is also referred to as the "tonic" of either the *key* or of the G major *scale*. This is sometimes confusing, so remember: we talk about the "root" of a chord and "tonic" of a scale or key.

Just as the chords of a song give you its key, the song's melody (that is, the tune you would hum) will tend to suggest a certain scale built on the tonic of that key. Although the key and the scale used within the key are not technically the same thing, they are always closely related. So it makes sense to learn to play the major scales associated with the most common guitar keys, namely, C, G, D, A, and E. Although that may seem an arbitrary order to put them, it is not: each successive tonic is the 5th scale degree of the one that precedes it. (G is the 5th of C; D is the 5th of G, etc.). You may have heard of the circle of fifths -— well, this is part of that "circle". The exercise below will help you explore some of the other patterns inherent in this series of major scales.

Exercise 10

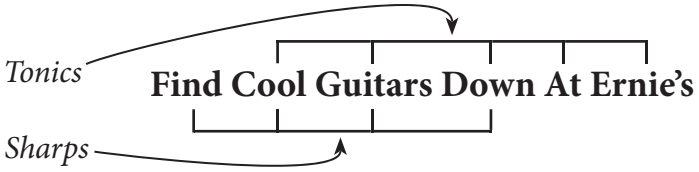
The left hand column of this table gives the tonic (1) of a common major scale. Each successive column consists of a scale degree. Above and between each column you see the interval that separates them in a major scale. Fill in each horizontal row, giving the notes of the major scale of each tonic. The C major scale is provided by way of example.

	W	W	H	W	W	W	H
Tonic (1)	**2**	**3**	**4**	**5**	**6**	**7**	**1**
C	D	E	F	G	A	B	C
G							
D							
A							
E							

A close examination of that chart you just created would reveal several significant, logical patterns which a little research of your own would reveal. (Try surfing the web for info on the "circle of fifths".) But for the moment we will stick to the barest of bare essentials. Here's what you need to know for our purposes:

- The names of the scales, in this order, and
- The sharps that will give you each scale. And again, you should learn these in a specific order.

Here's a mnemonic device that contains both sets of information:



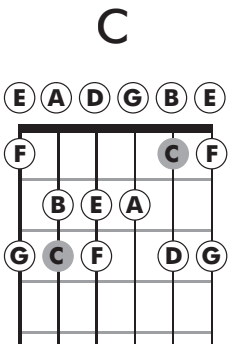
The bracket above the phrase highlights the order of the 5 major scales: C–G–D–A–E. The bracket below the phrase highlights the order in which a new sharp is added to each successive major scale: F#–C#–G#–D#. Notice that each successive scale has only one new sharp and all those from the previous scale are carried over. So rather than learning the sharps associated with these scales as if they were unrelated, simply learn the order in which they are introduced from scale to scale. Doing so gives us a simpler way of expressing the information you gathered in the chart above:

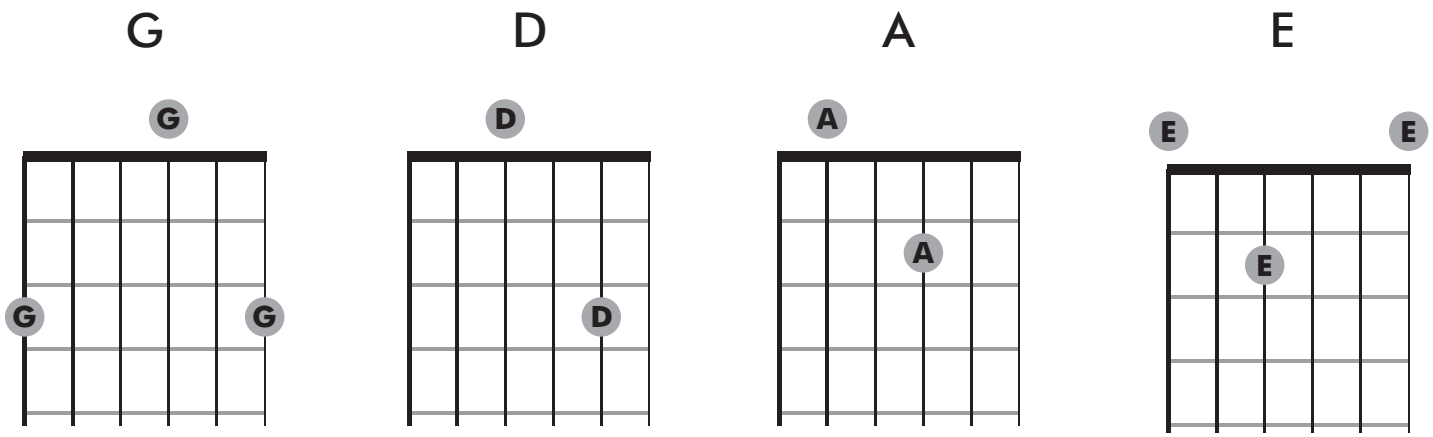
C major has **no** sharps or flats
G major has **one** sharp: F# *(Find)*
D major has **two** sharps: F#, C# *(Find Cool)*
A major has **three** sharps: F#, C#, G# *(Find Cool Guitars)*
E major has **four** sharps: F#, C#, G#, D# *(Find Cool Guitars Down)*

Let's see what these major scales look like on the fingerboard of the guitar. At the end of this primer, we will provide you with diagrams of all of them. But you will understand them much better if, at least once, you take the time to sketch them out yourself. The next exercise gives you the opportunity to do just that.

Exercise 11

In each diagram below, the tonic of a major scale is provided. Fill in the remainder of the notes that belong to that note's major scale. Remember to include those notes below the lowest tonic and above the highest, even though you will not be able to write out another entire octave of the scale. The C major scale is provided to the right as an example. (Note the new orientation of the fretboard, which is more typical of fretboard diagrams you will encounter in written music.)





The Major Chord

Once you understand major scales you can easily understand the construction of major *chords* as well. A major chord is made up of the *1st, 3rd and 5th scale degrees* of the major scale of the same name. The 1st scale degree is called the *root* of the chord and that note gives the chord its letter name. Use this information to try your hand at spelling some other common major chords in the next exercise.

Exercise 12

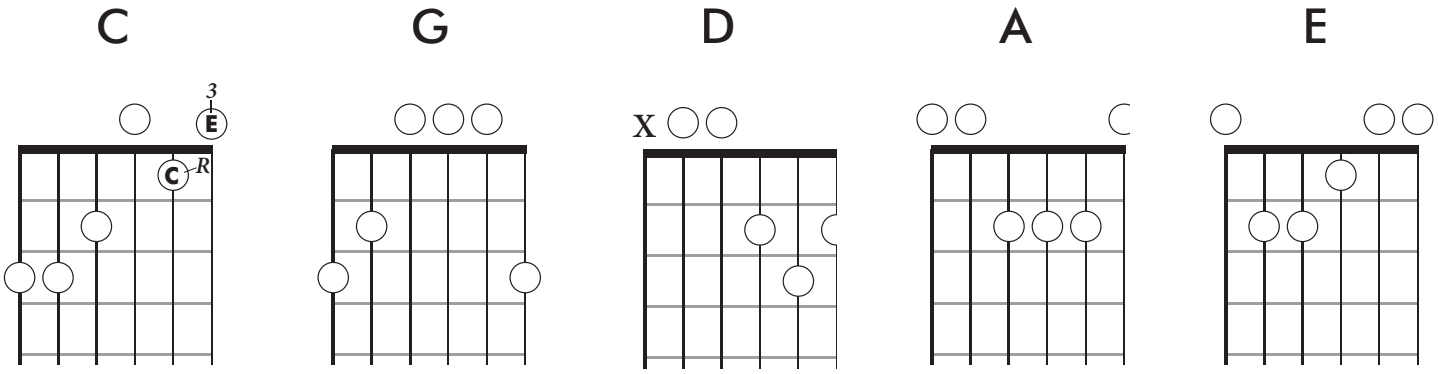
Using the information from the major scale tables above, "spell" the major chords built on each of these roots by providing the 3rd and 5th in the table to the right. The spelling of a C chord has been provided by way of example.

Root	3rd	5th
C	E	G
G		
D		
A		
E		

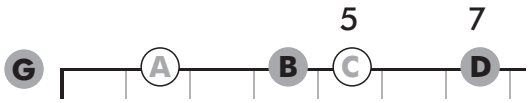
Now let's relate this to the common chord shapes you have probably been playing for years.

Exercise 13

The diagrams below show common major guitar chords in open position. Write each note's name in the circle provided and give its scale degree (root, 3rd or 5th). The first couple notes of the C chord have been completed by way of example.



There may be occasions in which you want to know the spelling of a major chord even though you have not memorized the sharps or flats associated with the scale. In these situations it will be helpful to know how to construct the major chord without reference to the scale. The diagram below should help. It shows the first five notes of a G major scale arranged along one string — starting with an open G — with the root, 3rd and 5th darkened. These are, of course, the notes that would give you the G major chord. Notice that between G and B there are two whole steps (four frets) whereas between B and D there is only a step and a half (3 frets).



This set of relationships is true for all major chords:

- There are two whole steps between the root and the 3rd.
- There are 1 1/2 steps between the 3rd and 5th.

The next exercise will give you the chance to try your hand at spelling major chords that are not derived from any of the five major scales we will focus on.

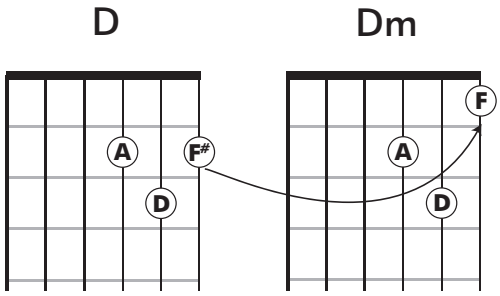
Exercise 14

Spell the major chord built on each of the roots by providing the name of the 3rd and 5th of the chord.

Root	3rd	5th
F		
B		
Eb		

Minor Chords

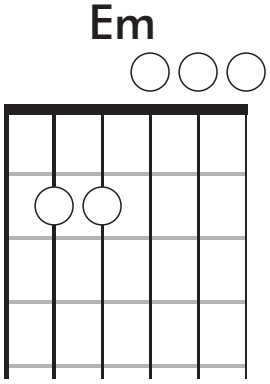
Although minor chords can be derived from minor scales as we have already done with major scales and chords, there's a simpler way to make sense of them: a minor chord is just a major chord with a *flatted third*. See the diagrams to the right for an example using chords that are probably familiar to you. On the left you see a D chord; to the right you see D minor. What's the difference? To create a D minor, the F# on the first string of the D chord (the 3rd of the chord) has been lowered by one half step ("flatted") to F natural.



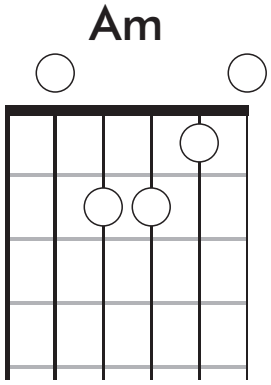
We'll put this insight to work in the exercise that follows.

Exercise 15

The diagrams below show two common minor chords, Am and Em. Put an x on the note that distinguishes that chord from the major chord with the same root. Then complete the sentences to the right of each diagram.



___ is the 3rd of an Em chord. To make this an E *major* chord I'd have to raise that note to ___.

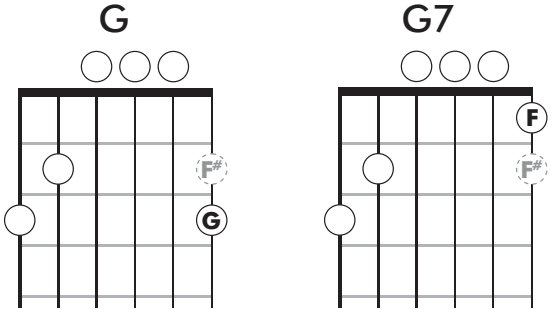


___ is the 3rd of an Am chord. To make this an A *major* chord I'd have to raise that note to ___.

Seventh Chords

The other common chord type we will encounter is that of the 7th chord, also known as a *dominant 7th* chord. There are other types of seventh chords as well – major 7ths, minor 7ths, etc – but we will limit ourselves to dominant 7th chords here. Once again we will lean on our understanding of major chords to simplify things. Whereas major (and minor) chords consist of only three notes, a 7th chord has *four.* Here's the short and fast rule: a dominant seventh chord is a major chord plus the note *1 whole step* below the root of the chord.

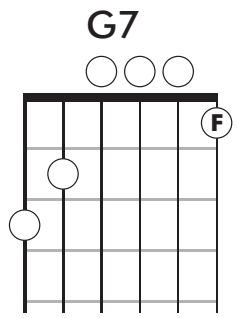
The number 7 in the chord's name is a reference to its scale degree. Unfortunately, however, this is a little misleading, which these diagrams should make clear. They show a simple G major chord (with the high root indicated) and a G7 chord (with the 7th indicated). The lighter note that appears on the first string, second fret of both diagrams is F#, which we know is the seventh note of a G major scale. Notice that the F# is only one half step below G. But the rule we stated above is that to create a seventh chord you add the note one *whole* step below the root of the chord. So the "7th" of a dominant seventh chord is not the 7th of a major scale, but the *b7*. Sometimes this distinction between the "major 7th" and "b7" is important, but often in casual speech they are both referred to simply as the "7th".

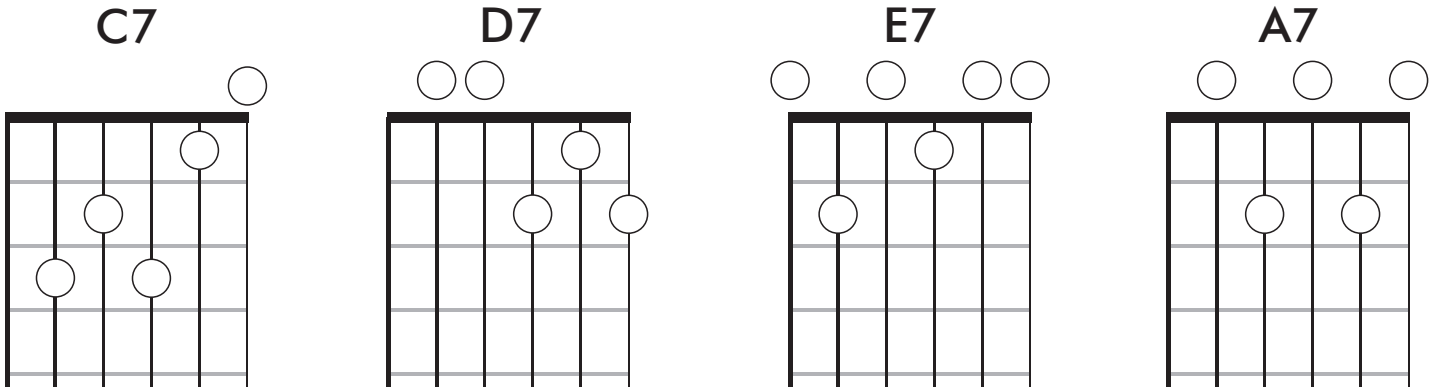


This exercise will give you a chance to practice distinguishing between simple major and 7th chords.

Exercise 16

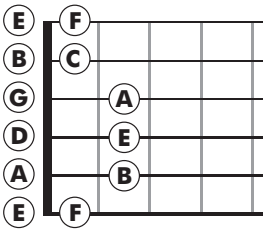
The diagrams below show four common 7th chords. Identify the note that makes the chord a "7th" by writing the name of the note in the circle just as we've done for the G7 chord to the right.





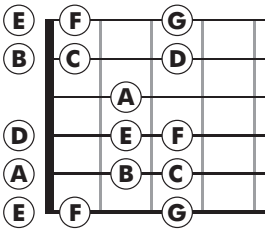
Answers to the Exercises

Exercise 1

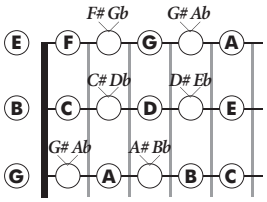


Exercise 2

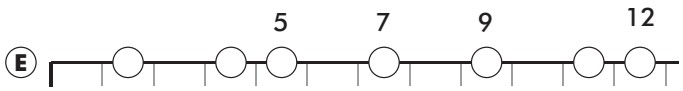
Exercise 3



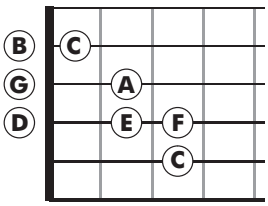
Exercise 4



Exercise 5



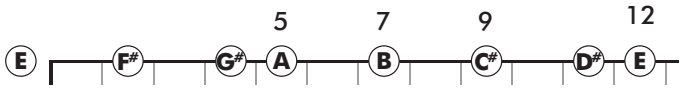
Exercise 6



Exercise 7

C = 1 G = 5 F = 4 D = 2
A = 6 E = 3 B = 7

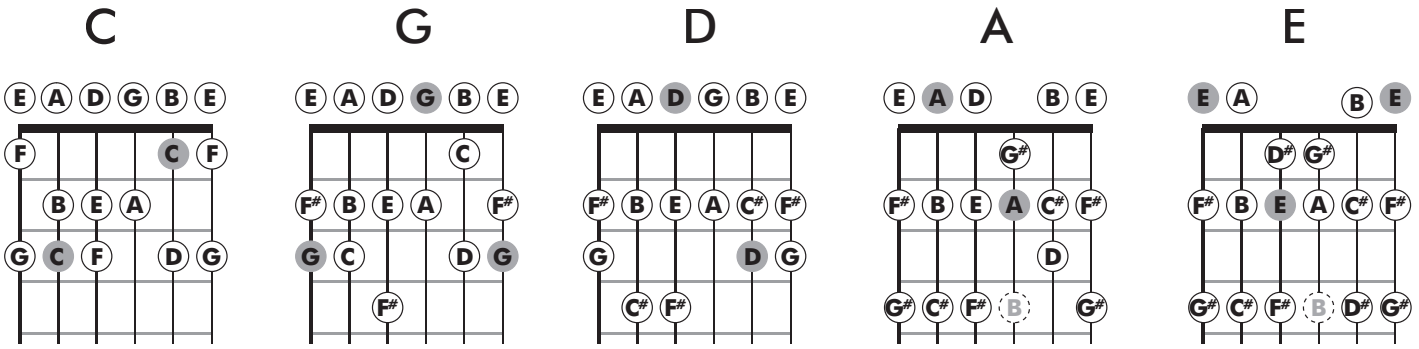
Exercise 8



Exercise 10

Tonic (1)	2	3	4	5	6	7	1
C	D	E	F	G	A	B	C
G	A	B	C	D	E	F#	G
D	E	F#	G	A	B	C#	D
A	B	C#	D	E	F#	G#	A
E	F#	G#	A	B	C#	D#	E

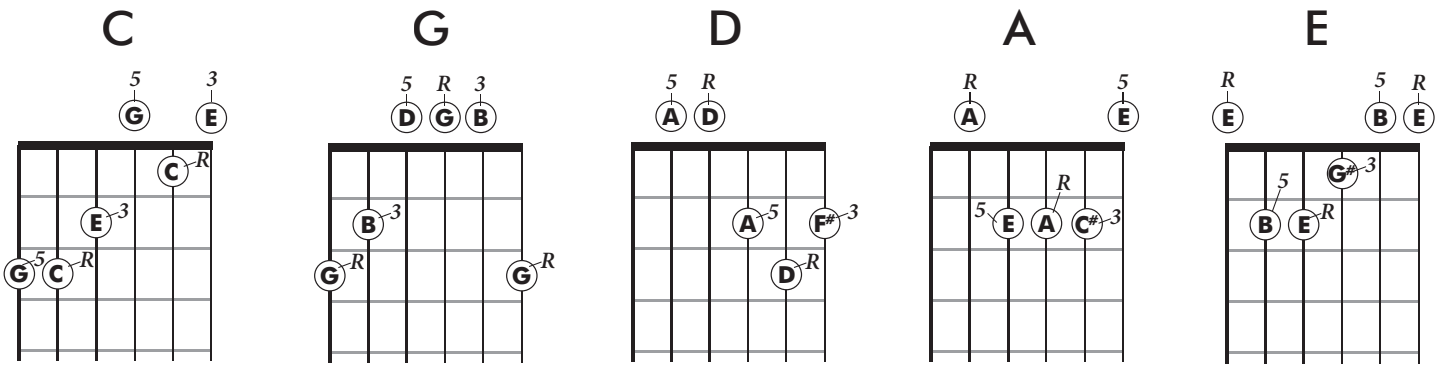
Exercise 11



Exercise 12

Root	3rd	5th
C	E	G
G	B	D
D	F#	A
A	C#	E
E	G#	B

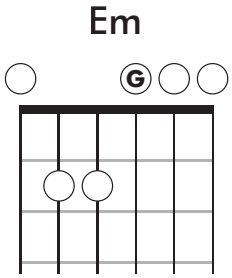
Exercise 13



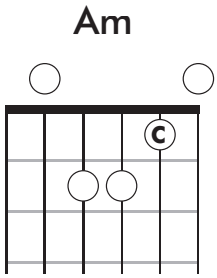
Exercise 14

Root	3rd	5th
F	A	C
B	D#	F#
Eb	G	Bb

Exercise 15



G is the 3rd of an Em chord. To make this an E *major* chord I'd have to raise that note to **G#**.



C is the 3rd of an Am chord. To make this an A *major* chord I'd have to raise that note to **C#**.

Exercise 16