

Jermaine Griggs & Chuku Onyemachi

*QUICK
REFERENCE ON*

Dominant Seventh Chords

CHAPTER 1

Definition Of The Dominant Seventh Chord

In this course, we will be looking at the dominant seventh chord, one of the most important chords in harmony.

You can hardly learn how to harmonize or create chord progressions without coming across the dominant seventh chord.

In fact, the dominant seventh chord has one of the strongest pulls in music. It creates tension that can resolve to major and minor chords.

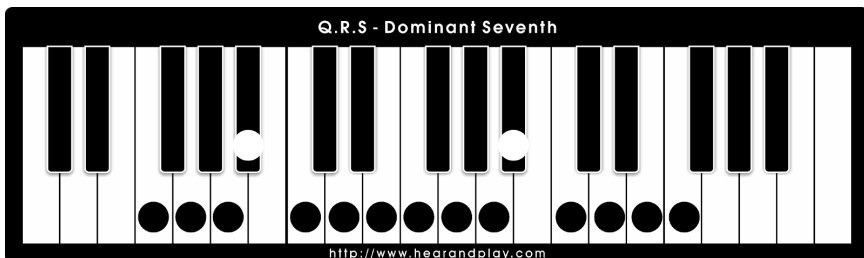
Let's get started by defining the dominant seventh chord.

Definition Of The Dominant Seventh Chord

The term 'dominant' refers to the technical name of the fifth degree of the major scale.

It can also be the fifth degree of a minor scale. But in today's post, we will see the term *dominant* as the fifth degree of the major scale for the sake of simplicity.

The dominant seventh chord can be formed on the fifth degree of the major scale in any given key. For example, in the F major scale:



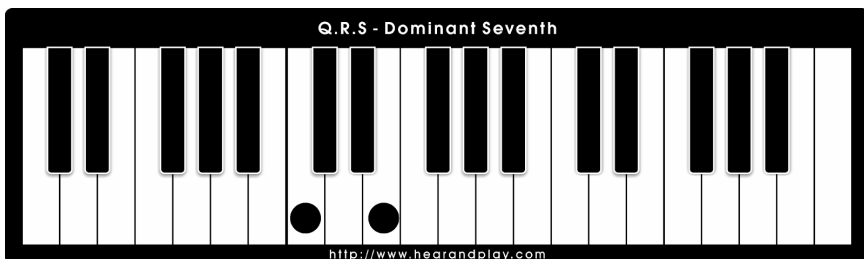
...C is the fifth degree.

Therefore, using the "*skip and pick*" technique, you can form the dominant seventh chord in the key of F. In this case, it'd be a C dominant seventh chord.

So from C:



...skip D and pick E:



...skip F and pick G:



...skip A and pick Bb:



We're picking Bb because it is the fourth note of the F major scale,
not the natural B:



C, E, G, and Bb, put together, would produce the C dominant seventh chord. It is called a dominant seventh chord because it can be formed from the fifth degree of the major scale of any key.

If this doesn't make sense to you right now, fret not, as we'll be covering every aspect of the chord, step by step.

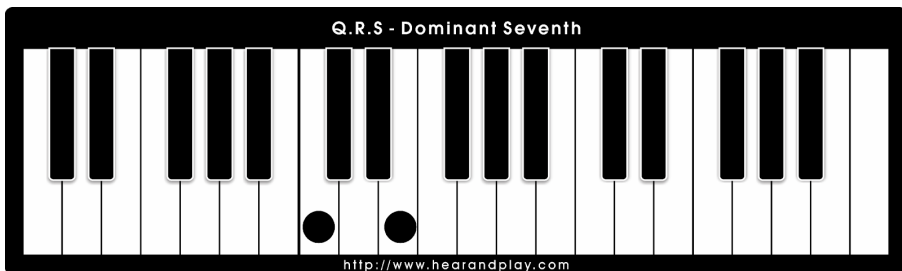
CHAPTER 2

Intervallic Breakdown Of The Dominant Seventh Chord

To understand the dominant seventh chord properly, we need to break down its intervals to know what stuff the dominant seventh chord is made up of.

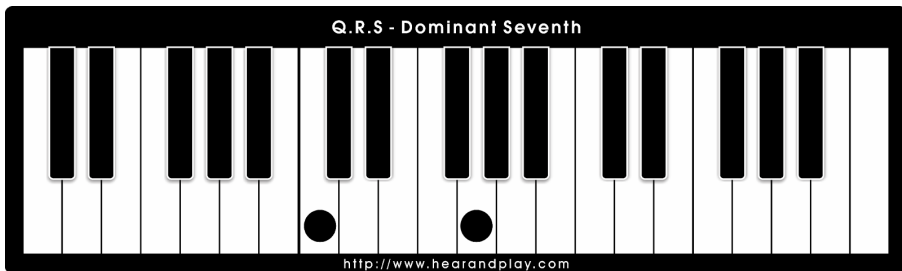
First, we have the following intervals in relation to C.

C-E:



...the **major third** interval.

C-G:



...the **perfect fifth** interval.

C-Bb:



...the **minor seventh** interval.

Put together, there are three intervallic components of the dominant seventh chord...

- the major third
- the perfect fifth
- the minor seventh

Let's cross-examine these intervals using the C dominant seventh chord as a reference.

The interval between C and E is a major third. The quality of third in a chord determines its tonality. The dominant seventh chord is considered a major chord because it has the major third interval as its intervallic component. I repeat, *"what makes a chord major or minor is dependent on the quality of interval in its third degree."*

The perfect fifth is between C and G. The perfect fifth is the interval between the first and fifth tones of any given major scale. The dominant seventh chord contains the perfect fifth interval and, as such, is considered to be stable even though it has a degree of

instability. We will look at the instability of the dominant seventh subsequently in this segment.

The minor seventh is between C and Bb. The dominant seventh chord contains a dissonant interval between its first and seventh tones, which are C and Bb respectively. C and Bb would produce a minor seventh interval if sounded together.

*"There's a Tritone
Hiding Somewhere
In This Chord.
Shhh... Let Me
Show You..."*

Did you notice that unlike other types of seventh chords, the dominant seventh chord has a major third and minor seventh>

It's common to have chords that have the same quality of third and seventh...

- A major third and a major seventh (major 7th chord)
- A minor third and minor seventh (minor 7th chord)

But here, we have the dominant seventh chord, built off a mix-up of the major third and minor seventh intervals.

The dominant seventh chord is so called because it is formed from the fifth degree of the major scale (aka - "the dominant"). However, if you call the dominant seventh a *major-minor seventh chord*, so be it. You wouldn't be wrong to make this reference (incidentally, there is also such a thing as the minor-major seventh chord as well).

The variance in the quality of third and seventh draws our attention to another interval.

The interval formed between the third and the seventh tones of the dominant seventh chord is the **diminished fifth interval**, which is popularly known as the tritone.

The dissonance of this interval made musicians from several centuries ago call it [the devil in music](#).

Even though the dominant seventh chord has a perfect fifth interval between its first and fifth tone, the diminished fifth interval formed between the third and seventh tone makes the dominant seventh chord sound unstable.

Without further ado, let's look at the chord formation process of the dominant seventh chord.

CHAPTER 3

Alternative Chord Formation Approaches

There are two chord formation approaches that we are going to explore here:

- The scale approach
- The interval approach

The Scale Approach To The Chord Formation Of The Dominant Seventh Chord

The very first chord formation process is the scale approach.

The scale approach to chord formation will require us to use the mixolydian mode to form the dominant seventh chord.

"Considering that the mixolydian mode is an old system, why are we using it?"

The reason why we are bringing the mixolydian mode into chord formation is because the mixolydian mode is the fifth church mode (aka - "fifth ecclesiastical mode").

We are using it in chord formation because just as the term *dominant* refers to the chord of the fifth degree of the major scale, so does the term mixolydian refer to the fifth church mode.

"So what's the easiest way to form the mixolydian mode?"

The mixolydian mode can be formed from the major scale by lowering the seventh degree of the major scale by a semitone (half step).

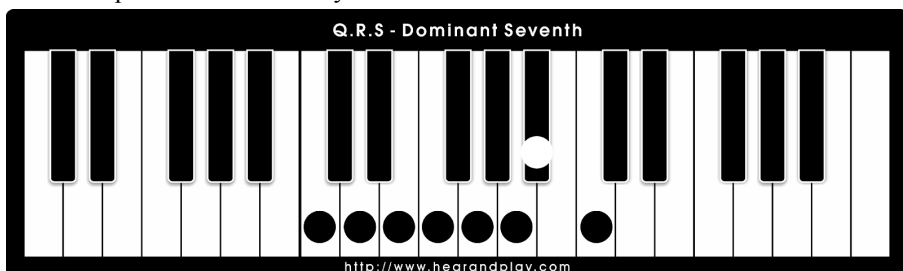
The C major scale can be used to form the C mixolydian mode. If we lower the seventh degree (B):



...by a semitone or half step (Bb):

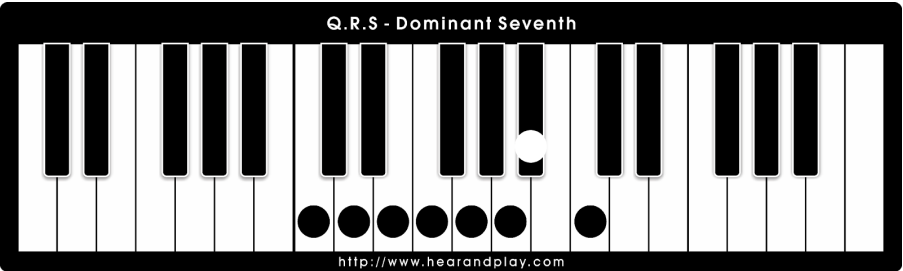


...this will produce the C mixolydian mode:

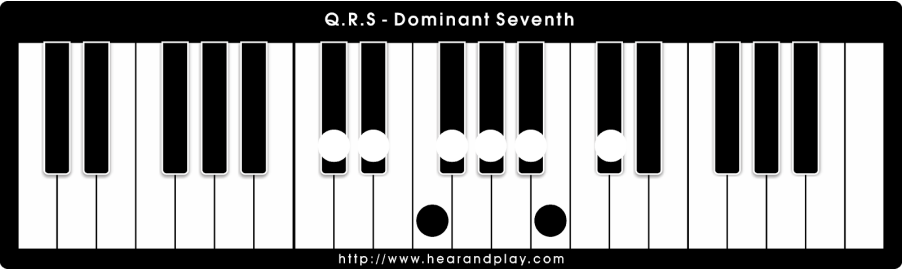


Below is the mixolydian scale in all the keys...

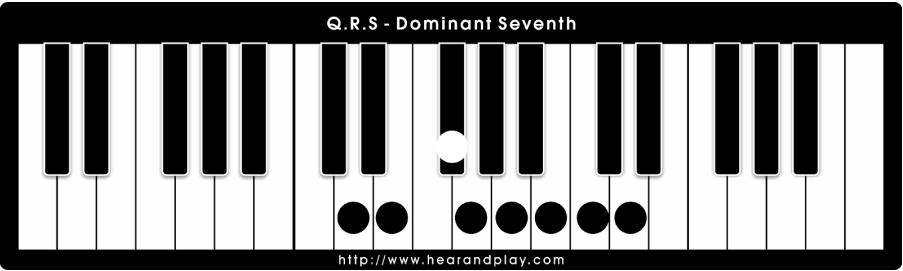
C mixolydian mode:



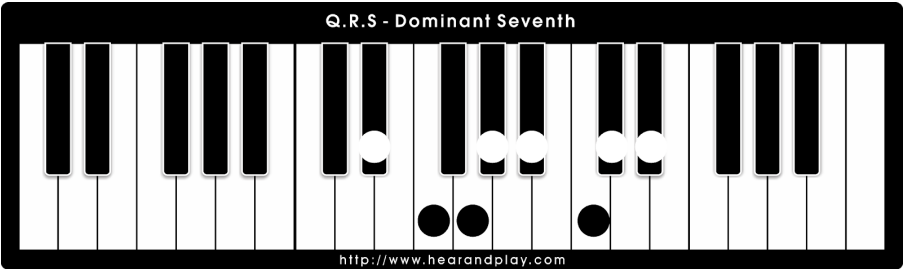
Db mixolydian mode:



D mixolydian mode:



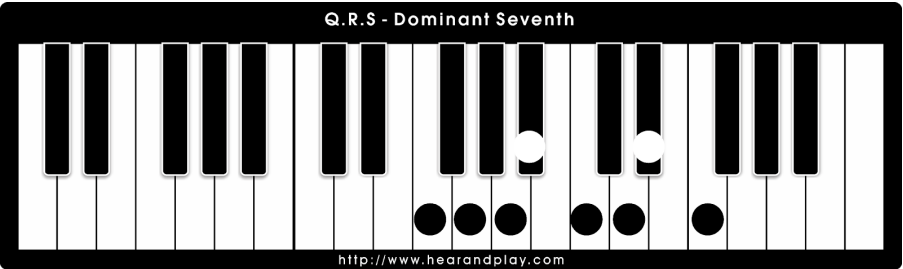
Eb mixolydian mode:



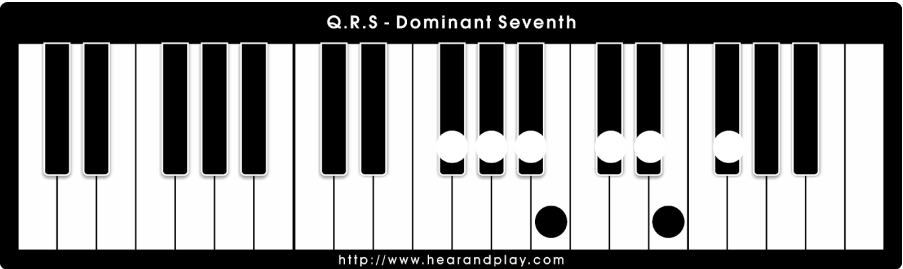
E mixolydian mode:



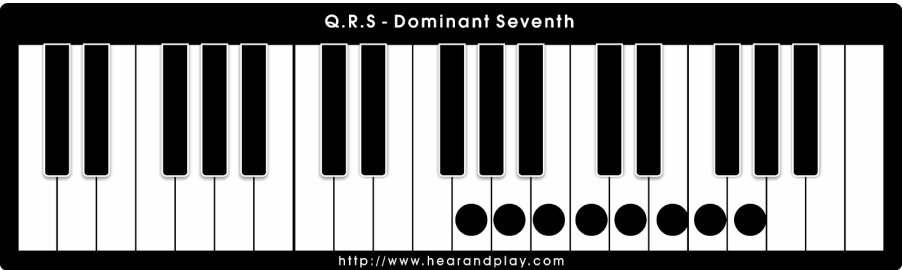
F mixolydian mode:



Gb mixolydian mode:



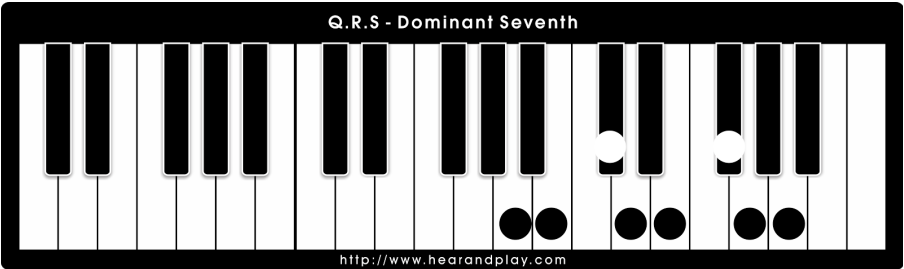
G mixolydian mode:



Ab mixolydian mode:



A mixolydian mode:



Bb mixolydian mode:



B mixolydian mode:



Using any of the mixolydian scales above, we can form the dominant seventh chord using the *pick and skip* technique we covered earlier.

Simply stack every other tone - *1st, 3rd, 5th, and 7th* - to create the dominant 7th chord in any key.

The Interval Approach To The Chord Formation Of The Dominant Seventh Chord

We can form the dominant seventh chord by fitting all its intervallic components into one octave.

The three intervallic components we came across earlier are the *major third*, the *perfect fifth* and the *minor seventh* intervals.

Putting all these intervals into one octave will produce the dominant seventh chord.

Here is a *Quick Way* to Form The Intervals of the Dominant Seventh Chord In All the Keys...

The major third is the relationship between the first and the third tone of any major scale. Using any major scale on the keyboard, you can form the major third interval by stacking the first and the third tones.

The perfect fifth can be formed by the relationship between the first and fifth degree of any major scale.

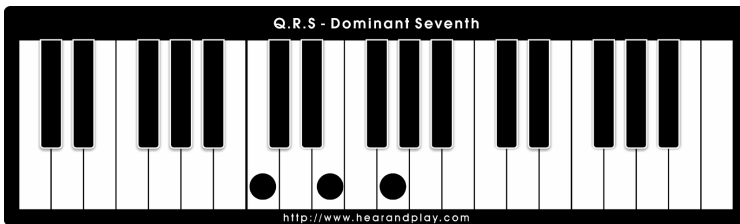
The minor seventh interval is smaller than the relationship between the first and seventh degree of the major scale. So if the major seventh, which is the first and seventh degree of the major scale, is stacked together and is *shrunked* by a semitone (half step), this will produce the minor seventh.

Bonus Approach: The Use Of The

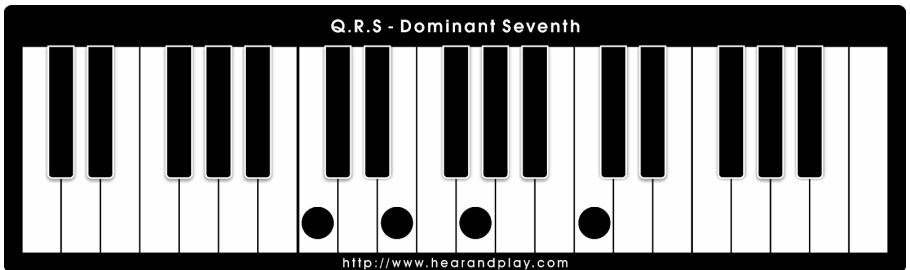
Major Triad In Octave Position

The major triad can be played in octave position and here is how...

The C major triad consists of C E G:



Playing it in octave position will entail adding an extra C on top of the chord and this would produce C E G C:



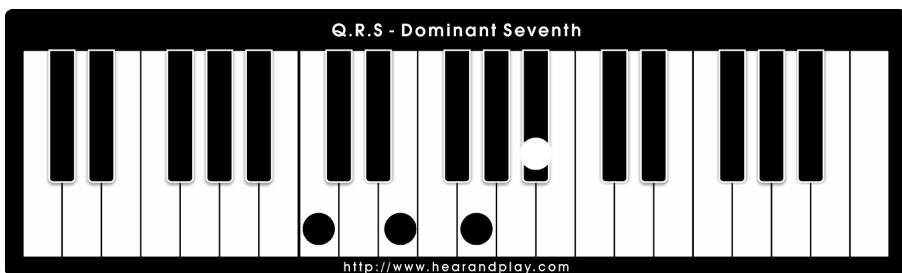
In this case, the root is doubled.

Considering that the root is doubled, the chord is also in octave position.

If we simply lower this *octave* by a whole step, in this case from C:



...to Bb:



...this will produce the dominant seventh chord.

Shrinking all octave position chords by a whole step will produce the dominant seventh chord.

Here are other examples:

D major chord consists of D-F#-A:



Playing D major in the octave position will produce D-F#-A-D:



Lowering the upper D by a whole step will produce D-F#-A-C:



...and that's the D dominant seventh chord.

Final Words

An understanding of the dominant seventh chord will help you better understand the application of the tritone.

Don't miss reading our blog for a single day because we'll be posting on the relationship between the tritone and dominant seventh chord very soon.

Dominant Seventh Chord

*QUICK REFERENCE ON
DOMINANT SEVENTH CHORDS*

Workbook
126 Exercises

YOU WILL BE GIVEN A NOTE. DETERMINE THE
MAJOR THIRD INTERVAL FROM THE NOTE GIVEN.

Question: Given the root note in the key of Db, dot the
major 3rd.



Answer:

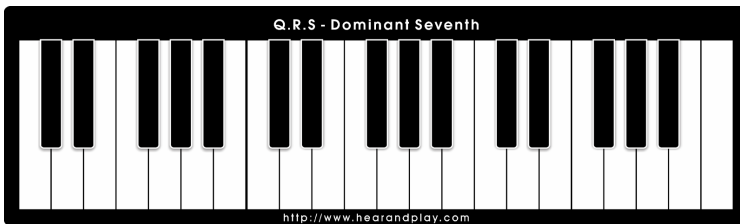


Question #1

Question: Given the root note in the key of C, dot the major 3rd.



Answer:

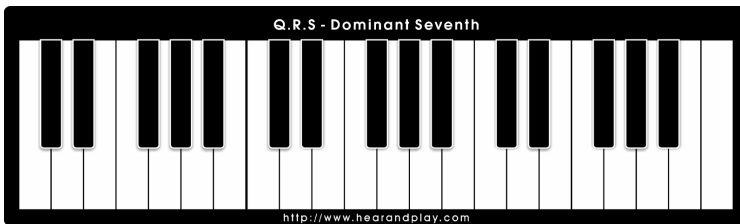


Question #2

Question: Given the root note in the key of F, dot the major 3rd.



Answer:

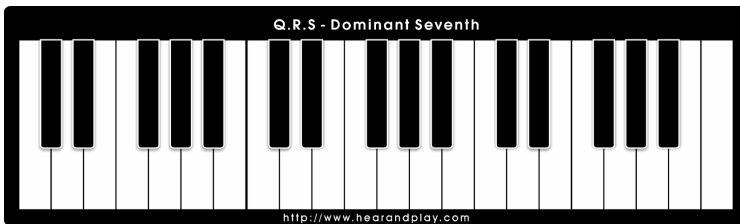


Question #3

Question: Given the root note in the key of Bb, dot the major 3rd.



Answer:

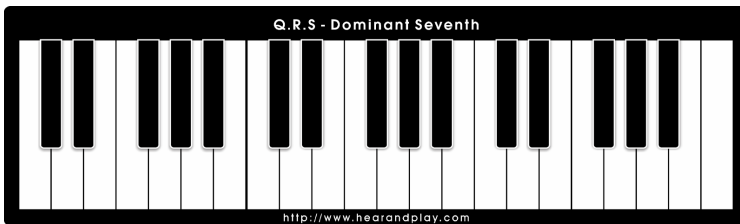


Question #4

Question: Given the root note in the key of Eb, dot the major 3rd.



Answer:



Question #5

Question: Given the root note in the key of Ab, dot the major 3rd.



Answer:

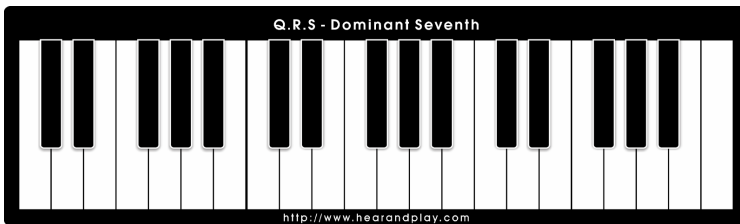


Question #6

Question: Given the root note in the key of Db, dot the major 3rd.



Answer:



Question #7

Question: Given the root note in the key of Gb, dot the major 3rd.



Answer:

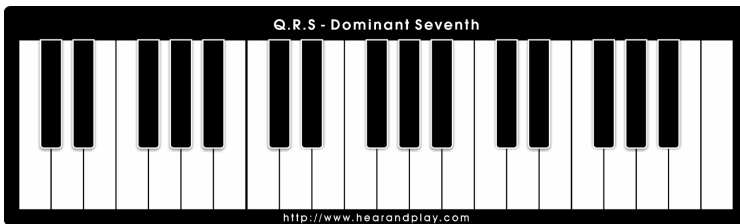


Question #8

Question: Given the root note in the key of B, dot the major 3rd.



Answer:

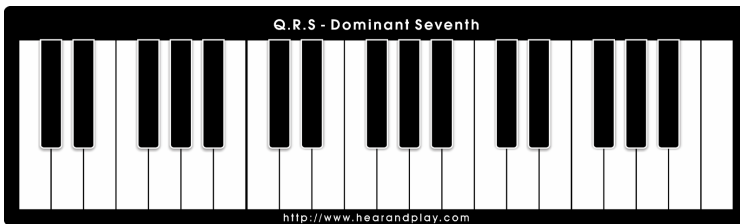


Question #9

Question: Given the root note in the key of E, dot the major 3rd.



Answer:



Question #10

Question: Given the root note in the key of A, dot the major 3rd.



Answer:

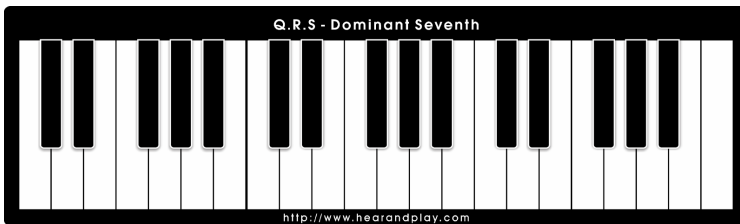


Question #11

Question: Given the root note in the key of D, dot the major 3rd.



Answer:

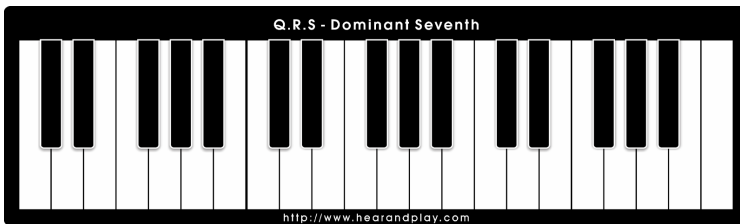


Question #12

Question: Given the root note in the key of G, dot the major 3rd.



Answer:

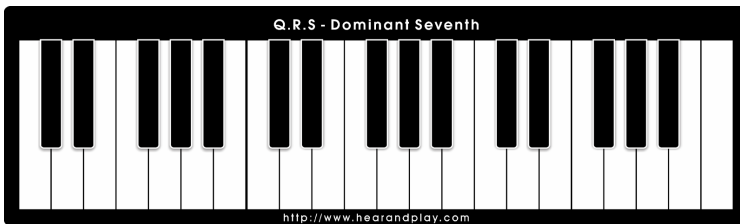


Question #13

Question: Given the root note in the key of C, dot the major 3rd.



Answer:

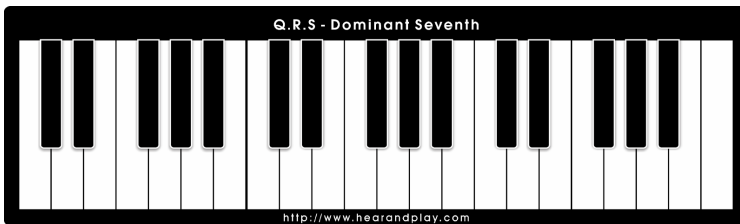


Question #14

Question: Given the root note in the key of G, dot the major 3rd.



Answer:

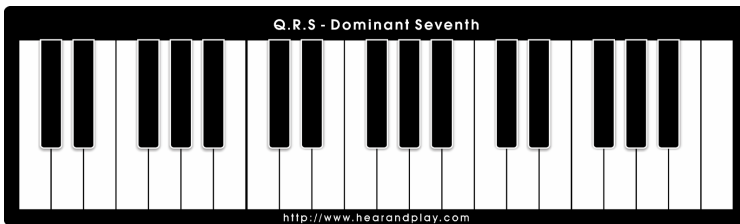


Question #15

Question: Given the root note in the key of D, dot the major 3rd.



Answer:



Question #16

Question: Given the root note in the key of A, dot the major 3rd.



Answer:



Question #17

Question: Given the root note in the key of E, dot the major 3rd.



Answer:



Question #18

Question: Given the root note in the key of B, dot the major 3rd.



Answer:



Question #19

Question: Given the root note in the key of Gb, dot the major 3rd.



Answer:

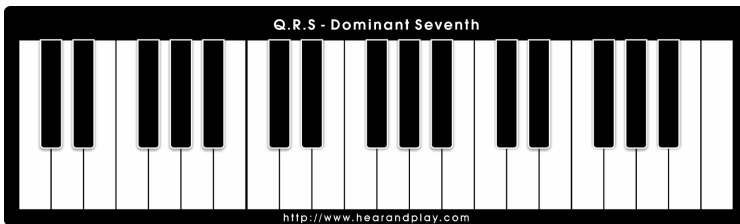


Question #20

Question: Given the root note in the key of Db, dot the major 3rd.



Answer:

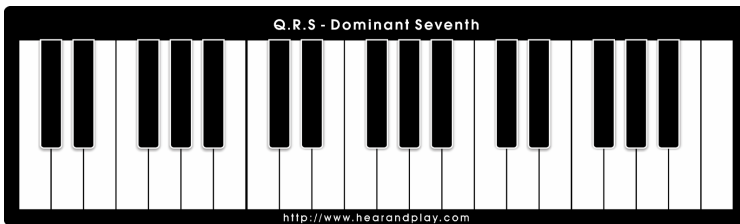


Question #21

Question: Given the root note in the key of Ab, dot the major 3rd.



Answer:

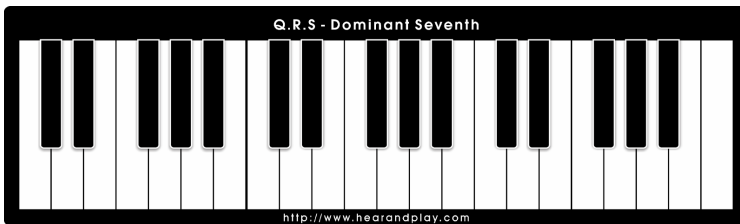


Question #22

Question: Given the root note in the key of Eb, dot the major 3rd.



Answer:

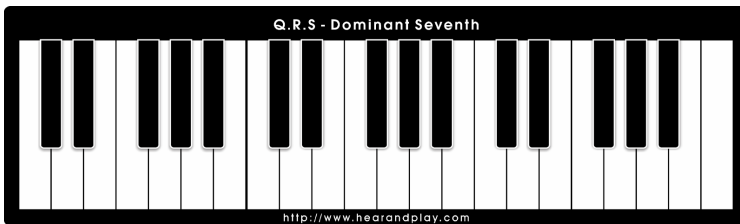


Question #23

Question: Given the root note in the key of Bb, dot the major 3rd.



Answer:



Question #24

Question: Given the root note in the key of F, dot the major 3rd.



Answer:



YOU WILL BE GIVEN A NOTE TO DETERMINE THE
PERFECT FIFTH OF THE NOTE GIVEN IN THE SCALE
DEGREE.

Question: Given the root note in the Key of Db, dot the
Perfect 5th.

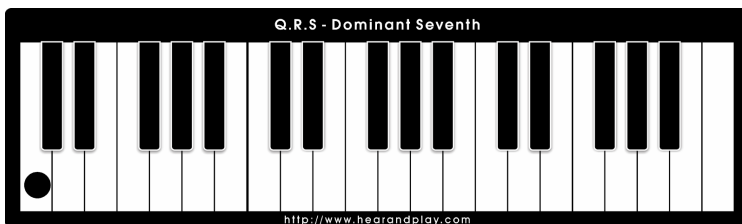


Answer:

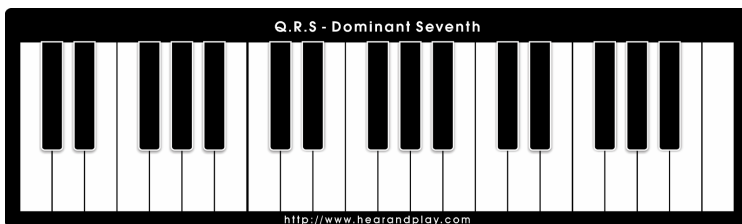


Question #25

Question: Given the root note of in the Key C, dot the Perfect 5th.



Answer:



Question #26

Question: Given the root note in the Key of F, dot the Perfect 5th.



Answer:

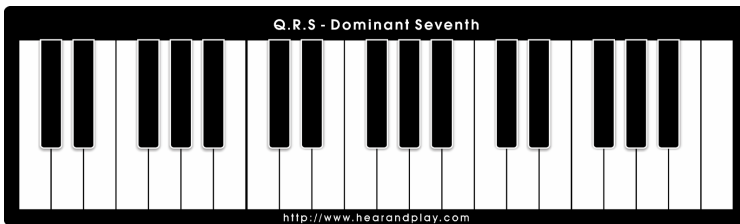


Question #27

Question: Given the root note in the Key of Bb, dot the Perfect 5th.



Answer:

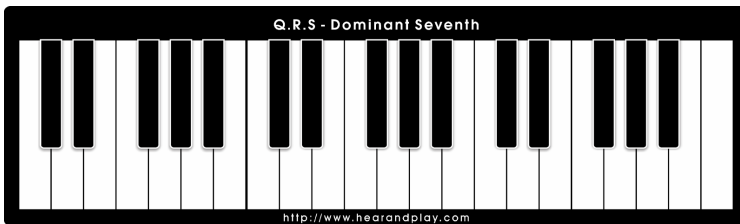


Question #28

Question: Given the root note in the Key of Eb, dot the Perfect 5th.



Answer:

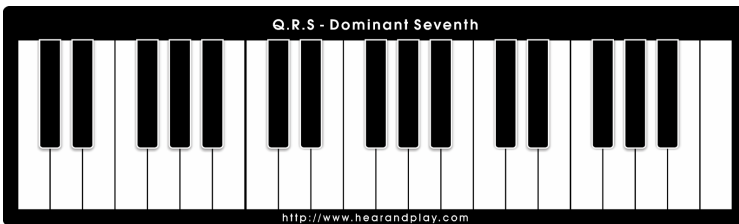


Question #29

Question: Given the root note in the Key of Ab, dot the Perfect 5th.



Answer:

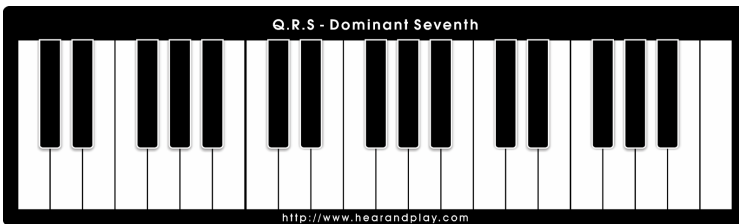


Question #30

Question: Given the root note in the Key of Db, dot the Perfect 5th.



Answer:



Question #31

Question: Given the root note in the Key of Gb, dot the Perfect 5th.



Answer:

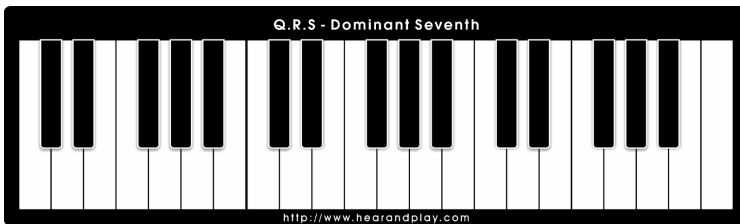


Question #32

Question: Given the root note in the Key of B, dot the Perfect 5th.



Answer:



Question #33

Question: Given the root note in the Key of E, dot the Perfect 5th.



Answer:



Question #34

Question: Given the root note in the Key of A, dot the Perfect 5th.



Answer:

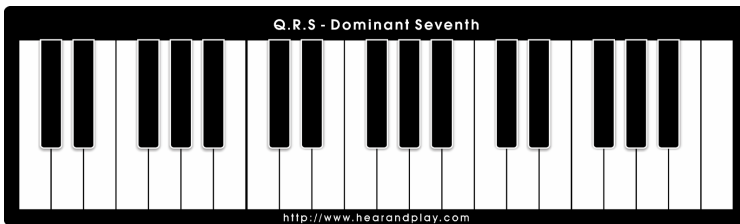


Question #35

Question: Given the root note in the Key of D, dot the Perfect 5th.



Answer:

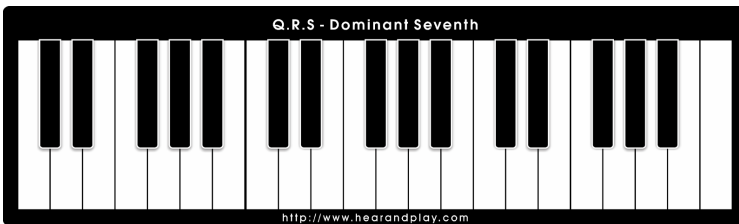


Question #36

Question: Given the root note in the Key of G, dot the Perfect 5th.



Answer:

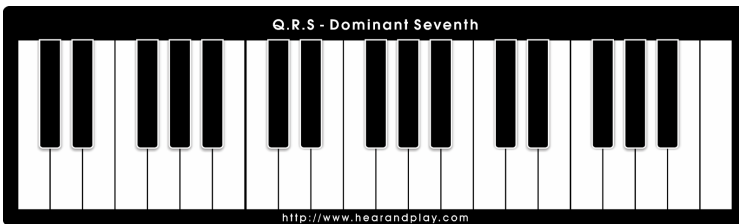


Question #37

Question: Given the root note in the Key of C, dot the Perfect 5th.



Answer:

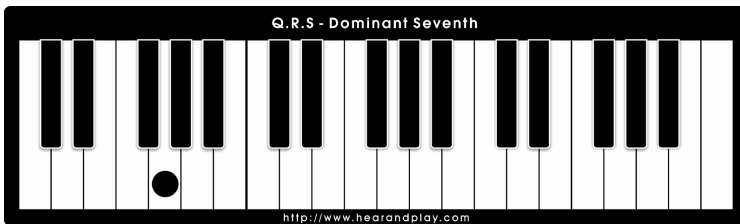


Question #38

Question: Given the root note in the Key of G, dot the Perfect 5th.



Answer:

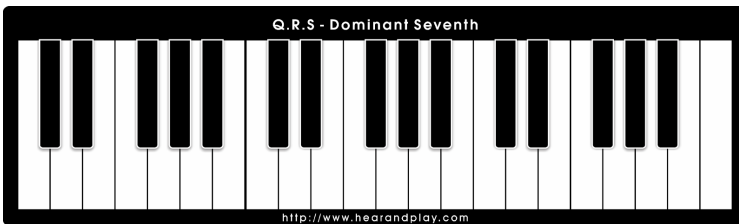


Question #39

Question: Given the root note in the Key of D, dot the Perfect 5th.



Answer:

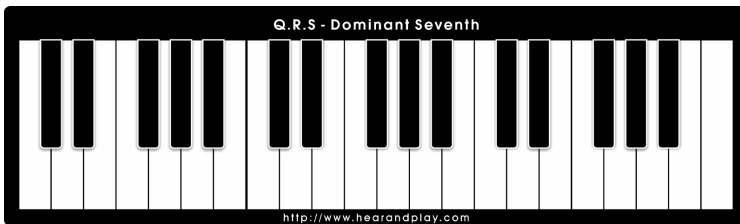


Question #40

Question: Given the root note in the Key of A, dot the Perfect 5th.



Answer:



Question #41

Question: Given the root note in the Key of E, dot the Perfect 5th.



Answer:

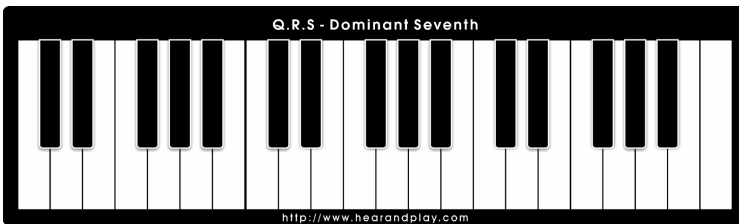


Question #42

Question: Given the root note in the Key of B, dot the Perfect 5th.



Answer:

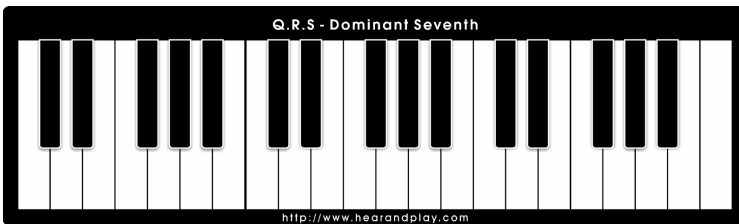


Question #43

Question: Given the root note in the Key of Gb, dot the Perfect 5th.



Answer:

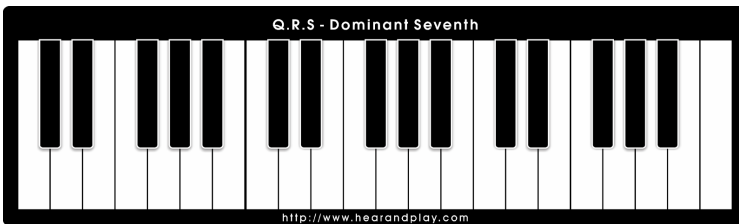


Question #44

Question: Given the root note in the Key of Db, dot the Perfect 5th.



Answer:

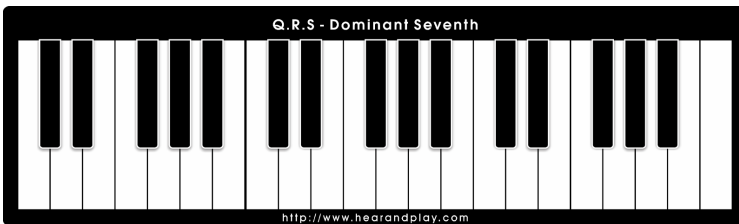


Question #45

Question: Given the root note in the Key of Ab, dot the Perfect 5th.



Answer:

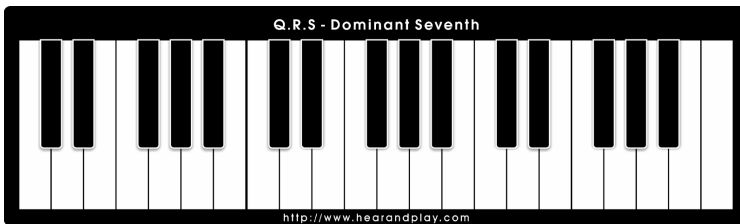


Question #46

Question: Given the root note in the Key of Eb, dot the Perfect 5th.



Answer:

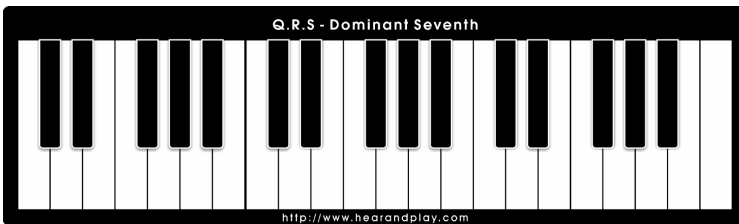


Question #47

Question: Given the root note in the Key of Bb, dot the Perfect 5th.



Answer:



Question #48

Question: Given the root note in the Key of F, dot the Perfect 5th.



Answer:



YOU WILL BE GIVEN A NOTE TO DETERMINE THE
MINOR SEVENTH INTERVAL OF THE NOTE GIVEN.

Question: Given the root note in the Key Db, dot the minor 7th.



Answer:



Question #49

Question: Given the root note in the Key of C, dot the minor 7th.



Answer:

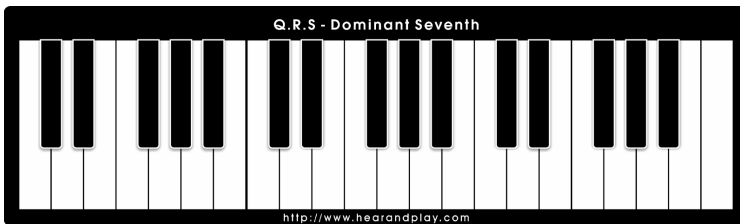


Question #50

Question: Given the root note in the Key of F, dot the minor 7th.



Answer:



Question #51

Question: Given the root note in the Key Bb, dot the minor 7th.



Answer:



Question #52

Question: Given the root note in the Key Eb, dot the minor 7th.

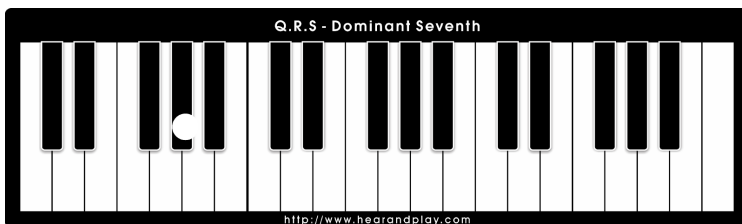


Answer:

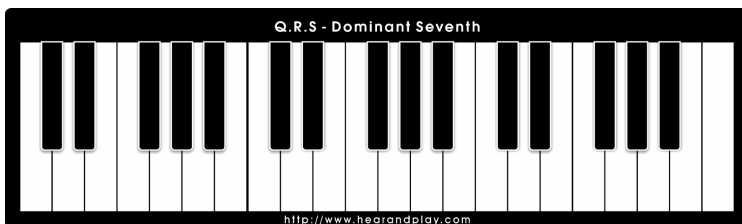


Question #53

Question: Given the root note in the Key Ab, dot the minor 7th.



Answer:



Question #54

Question: Given the root note in the Key Db, dot the minor 7th.



Answer:



Question #55

Question: Given the root note in the Key Gb, dot the minor 7th.



Answer:

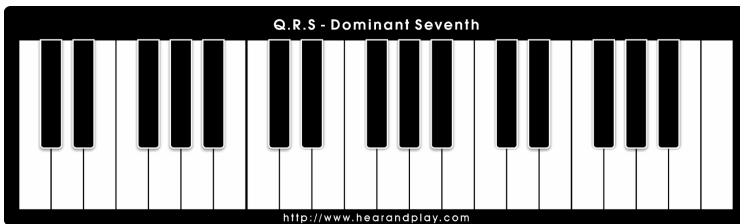


Question #56

Question: Given the root note in the Key B, dot the minor 7th.



Answer:



Question #57

Question: Given the root note in the Key E, dot the minor 7th.



Answer:



Question #58

Question: Given the root note in the Key A, dot the minor 7th.



Answer:



Question #59

Question: Given the root note in the Key D, dot the minor 7th.



Answer:

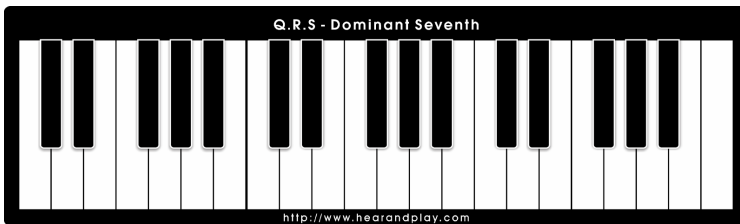


Question #60

Question: Given the root note in the Key G, dot the minor 7th.



Answer:



Question #61

Question: Given the root note in the Key C, dot the minor 7th.



Answer:



Question #62

Question: Given the root note in the Key G, dot the minor 7th.



Answer:

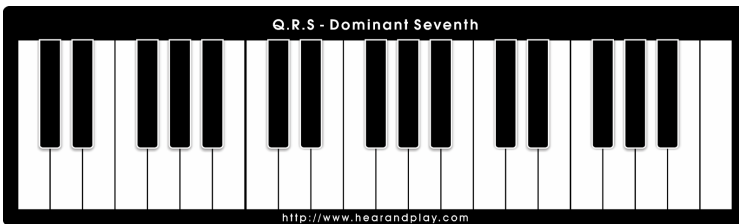


Question #63

Question: Given the root note in the Key D, dot the minor 7th.



Answer:



Question #64

Question: Given the root note in the Key A, dot the minor 7th.



Answer:



Question #65

Question: Given the root note in the Key E, dot the minor 7th.

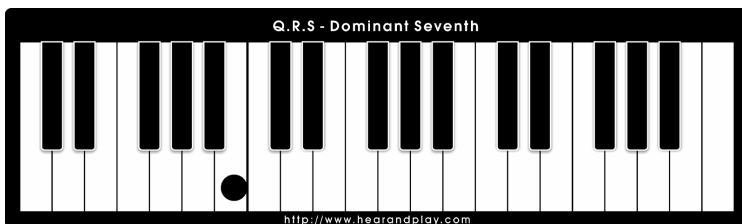


Answer:

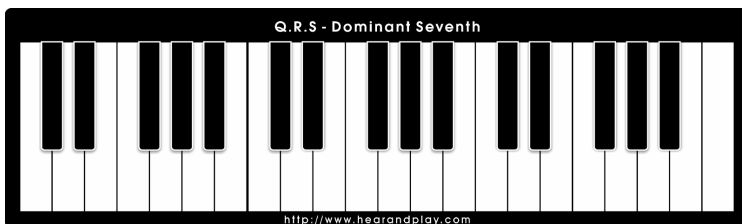


Question #66

Question: Given the root note in the Key B, dot the minor 7th.



Answer:



Question #67

Question: Given the root note in the Key Gb, dot the minor 7th.



Answer:

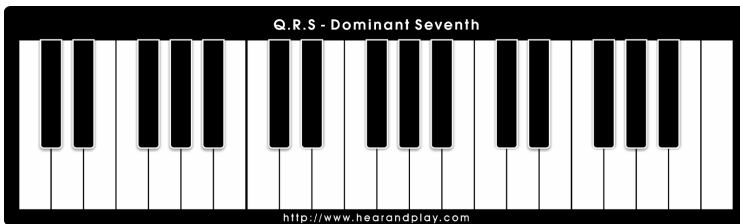


Question #68

Question: Given the root note in the Key Db, dot the minor 7th.



Answer:



Question #69

Question: Given the root note in the Key Ab, dot the minor 7th.



Answer:

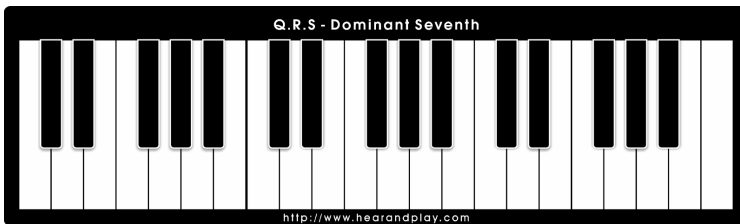


Question #70

Question: Given the root note in the Key Eb, dot the minor 7th.



Answer:



Question #71

Question: Given the root note in the Key Bb, dot the minor 7th.



Answer:

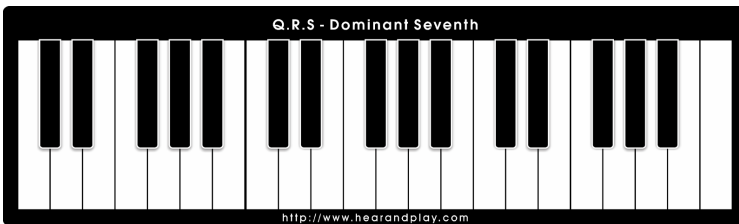


Question #72

Question: Given the root note in the Key F, dot the minor 7th.



Answer:



YOU WILL BE GIVEN THE MIXOLYDIAN SCALE IN
ANY KEY TO FORM A DOMINANT SEVENTH
CHORD.

Question: Given the mixolydian scale of Db, derive the Db
dominant 7th chord.

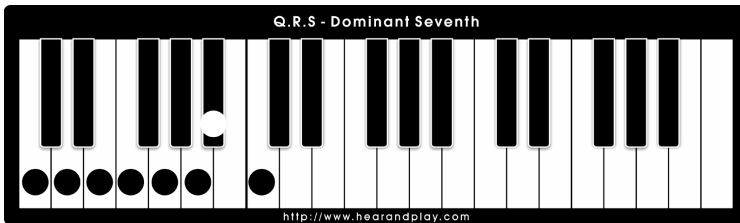


Answer:

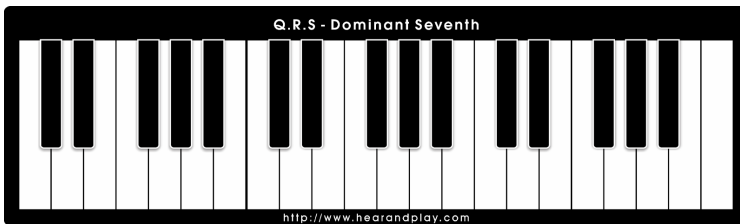


Question #73

Question: Given the mixolydian scale of C, derive the C dominant 7th chord.

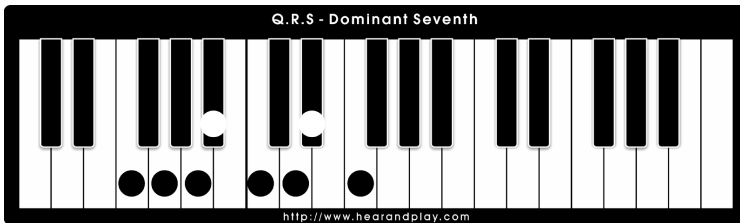


Answer:

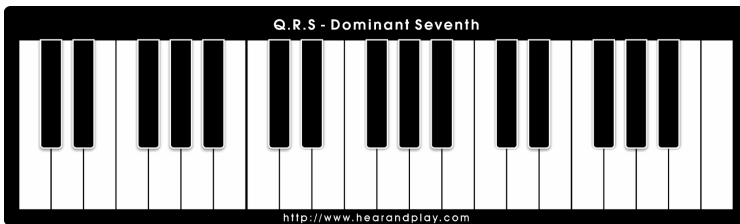


Question #74

Question: Given the mixolydian scale of F, derive the F dominant 7th chord.

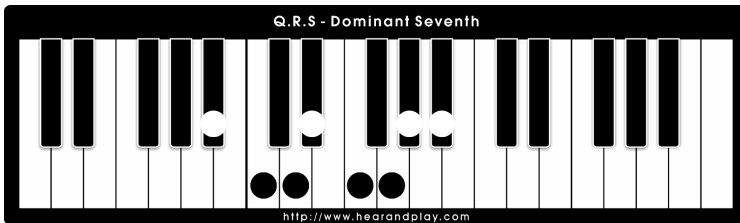


Answer:



Question #75

Question: Given the mixolydian scale of Bb, derive the Bb dominant 7th chord.



Answer:

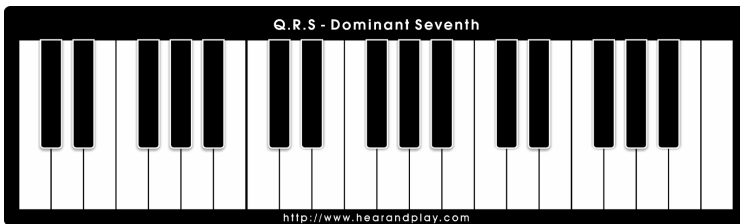


Question #76

Question: Given the mixolydian scale of Eb, derive the Eb dominant 7th chord.



Answer:



Question #77

Question: Given the mixolydian scale of Ab, derive the Ab dominant 7th chord.



Answer:

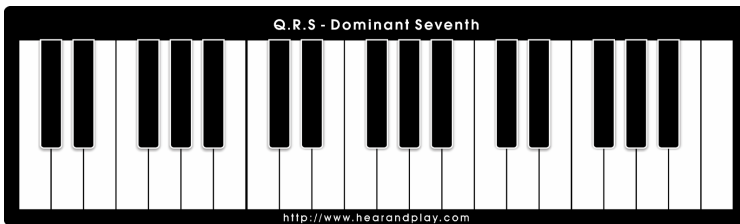


Question #78

Question: Given the mixolydian scale of Db, derive the Db dominant 7th chord.



Answer:

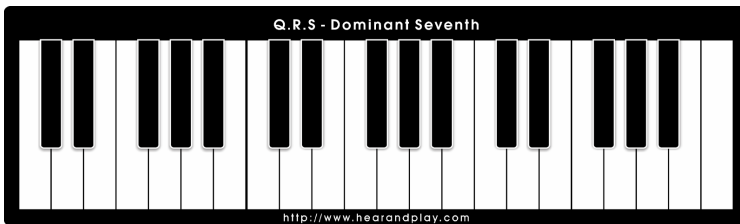


Question #79

Question: Given the mixolydian scale of Gb, derive the Gb dominant 7th chord.

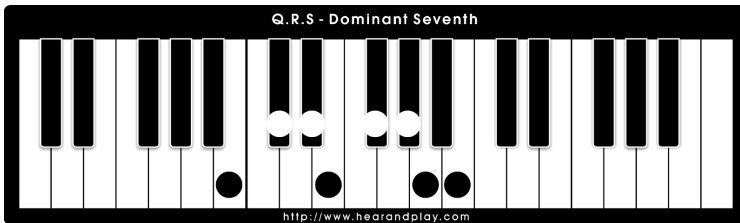


Answer:

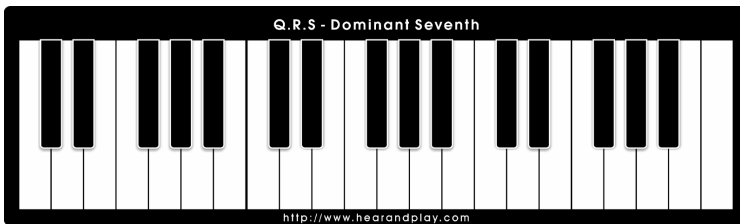


Question #80

Question: Given the mixolydian scale of B, derive the B dominant 7th chord.



Answer:

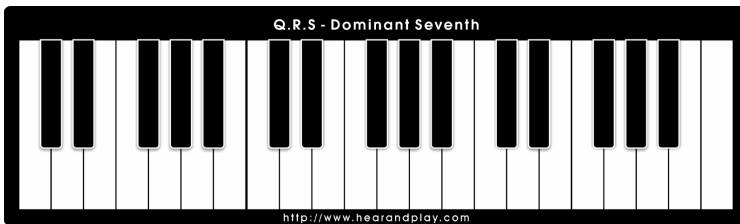


Question #81

Question: Given the mixolydian scale of E, derive the E dominant 7th chord.

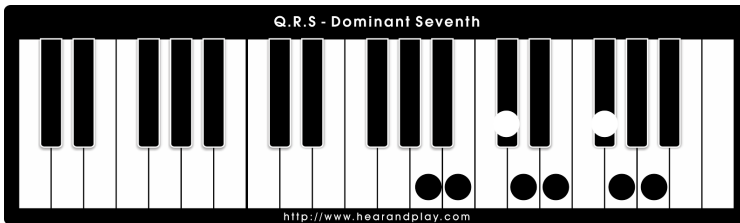


Answer:

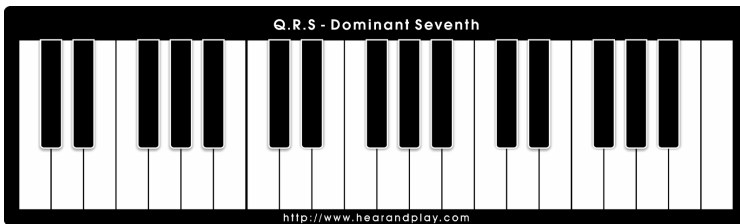


Question #82

Question: Given the mixolydian scale of A, derive the A dominant 7th chord.

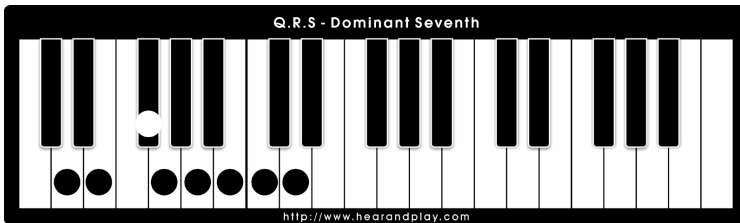


Answer:

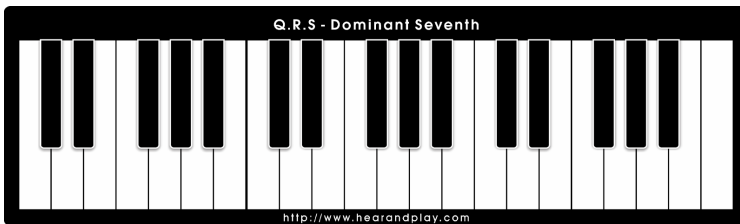


Question #83

Question: Given the mixolydian scale of D, derive the D dominant 7th chord.

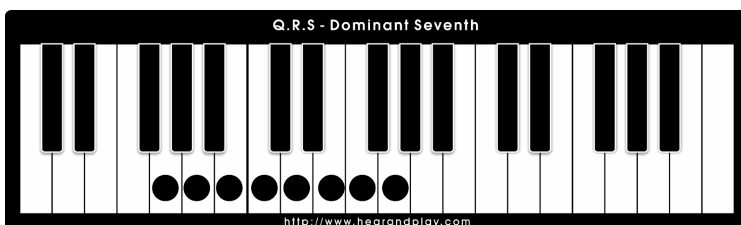


Answer:



Question #84

Question: Given the mixolydian scale of G, derive the G dominant 7th chord.



Answer:



Question #85

Question: Given the mixolydian scale of C, derive the C dominant 7th chord.

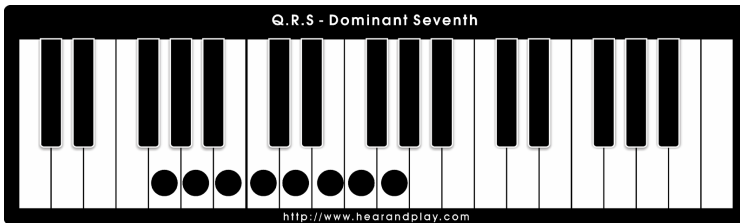


Answer:



Question #86

Question: Given the mixolydian scale of G, derive the G dominant 7th chord.

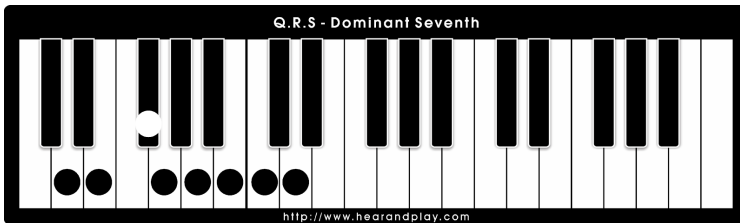


Answer:

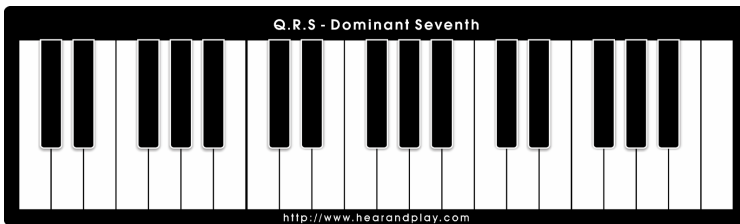


Question #87

Question: Given the mixolydian scale of D, derive the D dominant 7th chord.



Answer:



Question #88

Question: Given the mixolydian scale of A, derive the A dominant 7th chord.



Answer:



Question #89

Question: Given the mixolydian scale of E, derive the E dominant 7th chord.



Answer:



Question #90

Question: Given the mixolydian scale of B, derive the B dominant 7th chord.



Answer:

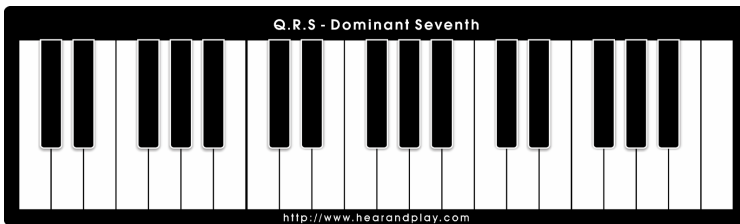


Question #91

Question: Given the mixolydian scale of Gb, derive the Gb dominant 7th chord.



Answer:

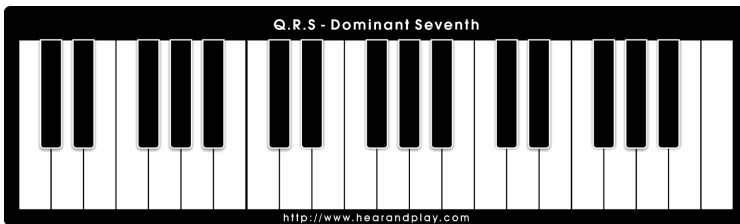


Question #92

Question: Given the mixolydian scale of Db, derive the Db dominant 7th chord.

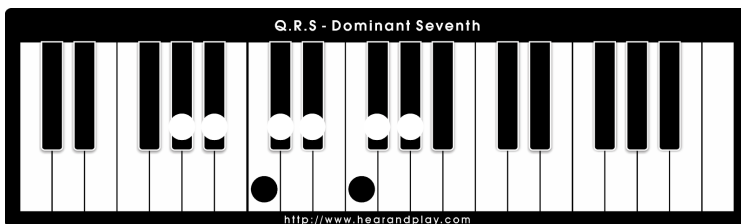


Answer:



Question #93

Question: Given the mixolydian scale of Ab, derive the Ab dominant 7th chord.



Answer:

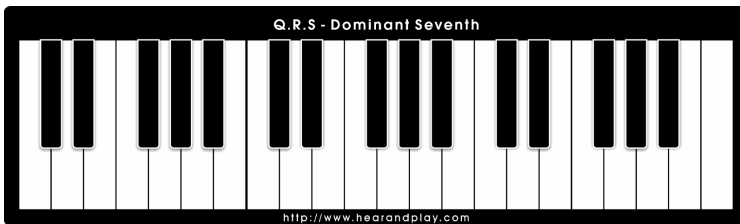


Question #94

Question: Given the mixolydian scale of Eb, derive the Eb dominant 7th chord.

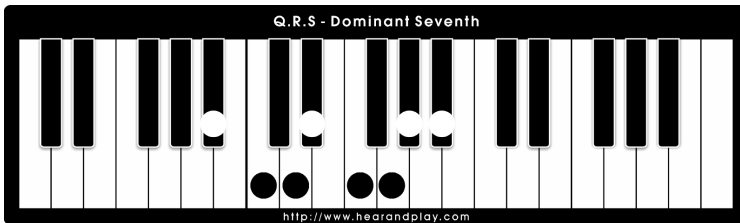


Answer:



Question #95

Question: Given the mixolydian scale of Bb, derive the Bb dominant 7th chord.

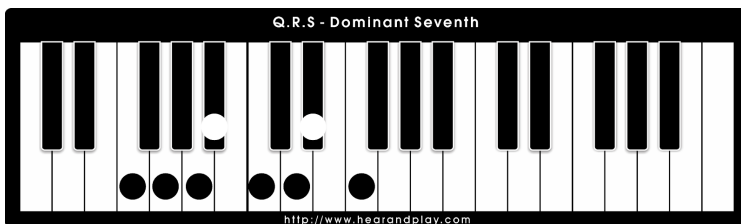


Answer:



Question #96

Question: Given the mixolydian scale of F, derive the F dominant 7th chord.



Answer:



YOU WILL BE GIVEN THE MAJOR TRIAD OF ANY
KEY IN OCTAVE POSITION. DETERMINE THE
DOMINANT SEVENTH CHORD OF THE KEY GIVEN.

Question: Given the Db major triad in octave position, form the Db dominant 7th chord.



Answer:



Question #97

Question: Given the C major triad in octave position, form the C dominant 7th chord.



Answer:



Question #98

Question: Given the F major triad in octave position, form the F dominant 7th chord.



Answer:



Question #99

Question: Given the Bb major triad in octave position, form the Bb dominant 7th chord.



Answer:

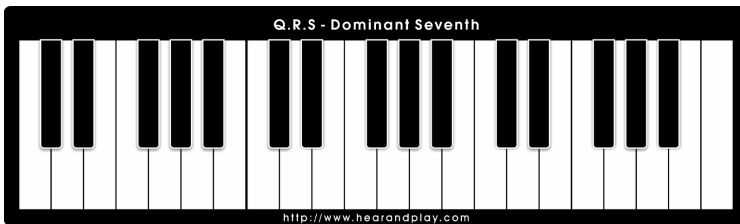


Question #100

Question: Given the Eb major triad in octave position, form the Eb dominant 7th chord.



Answer:

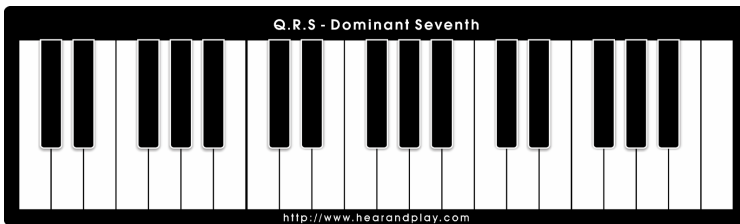


Question #101

Question: Given the Ab major triad in octave position, form the Ab dominant 7th chord.



Answer:



Question #102

Question: Given the Db major triad in octave position, form the Db dominant 7th chord.



Answer:



Question #103

Question: Given the Gb major triad in octave position, form the Gb dominant 7th chord.



Answer:



Question #104

Question: Given the B major triad in octave position, form the B dominant 7th chord.



Answer:



Question #105

Question: Given the E major triad in octave position, form the E dominant 7th chord.



Answer:



Question #106

Question: Given the A major triad in octave position, form the A dominant 7th chord.



Answer:



Question #107

Question: Given the D major triad in octave position, form the D dominant 7th chord.



Answer:



Question #108

Question: Given the G major triad in octave position, form the G dominant 7th chord.



Answer:

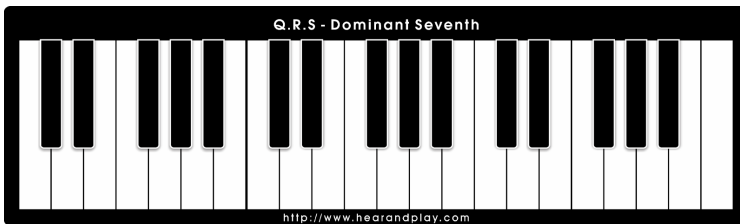


Question #109

Question: Given the C major triad in octave position, form the C dominant 7th chord.



Answer:



Question #110

Question: Given the G major triad in octave position, form the G dominant 7th chord.

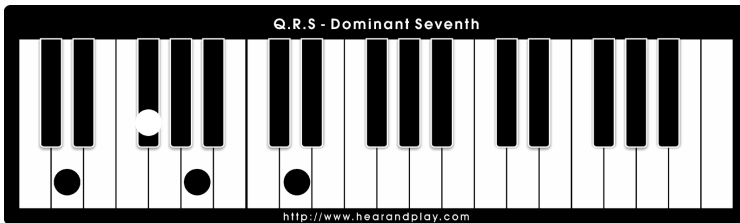


Answer:



Question #111

Question: Given the D major triad in octave position, form the D dominant 7th chord.



Answer:



Question #112

Question: Given the A major triad in octave position, form the A dominant 7th chord.



Answer:



Question #113

Question: Given the E major triad in octave position, form the E dominant 7th chord.



Answer:



Question #114

Question: Given the B major triad in octave position, form the B dominant 7th chord.



Answer:



Question #115

Question: Given the Gb major triad in octave position, form the Gb dominant 7th chord.



Answer:

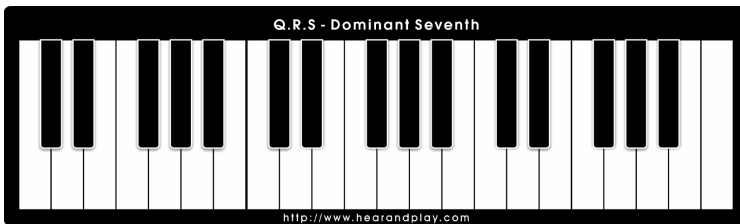


Question #116

Question: Given the Db major triad in octave position, form the Db dominant 7th chord.



Answer:

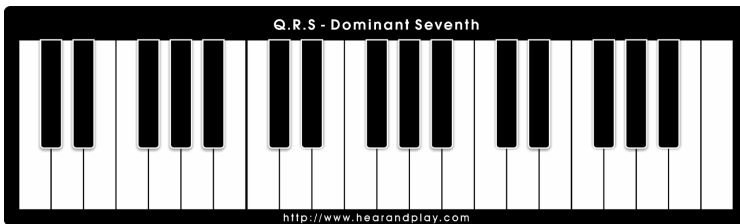


Question #117

Question: Given the Ab major triad in octave position, form the Ab dominant 7th chord.



Answer:



Question #118

Question: Given the Eb major triad in octave position, form the Eb dominant 7th chord.



Answer:

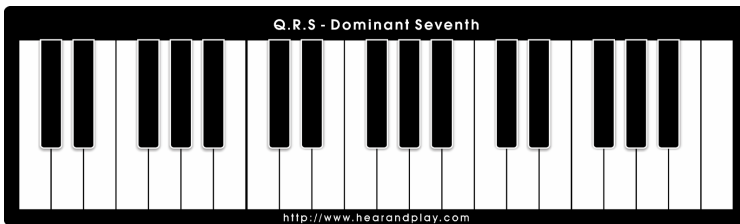


Question #119

Question: Given the Bb major triad in octave position, form the Bb dominant 7th chord.



Answer:



Question #120

Question: Given the F major triad in octave position, form the F dominant 7th chord.



Answer:



Question #121

Question: Given the C major triad in octave position, form the C dominant 7th chord.



Answer:



Question #122

Question: Given the G major triad of in octave position, form the G dominant 7th chord.

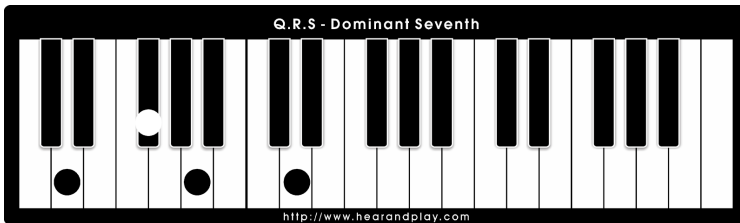


Answer:



Question #123

Question: Given the D major triad in octave position, form the D dominant 7th chord.



Answer:



Question #124

Question: Given the A major triad in octave position, form the A dominant 7th chord.



Answer:



Question #125

Question: Given the E major triad in octave position, form the E dominant 7th chord.



Answer:



Question #126

Question: Given the E major triad in octave position, form the E dominant 7th chord.



Answer:



Dominant Seventh Chords

Workbook
126 Answers

ANSWERS

TO QUESTIONS

1 - 24

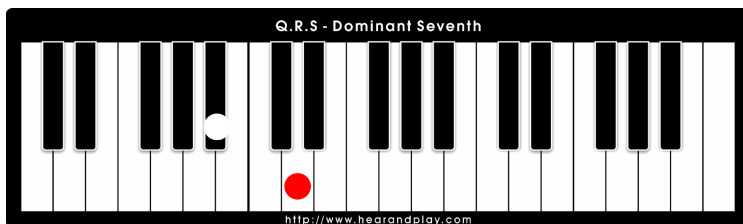
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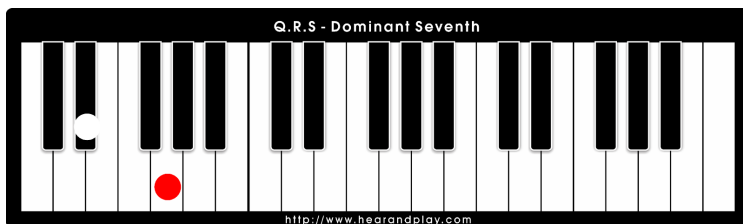
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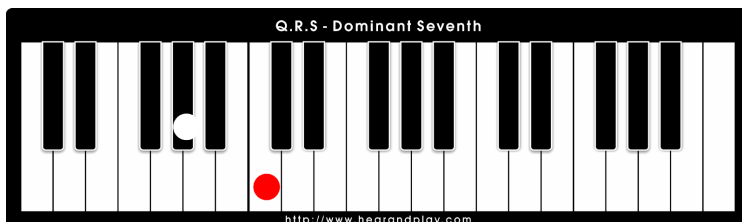
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Answer #4



Answer #5



Answer #6



Answer #7



Answer #8



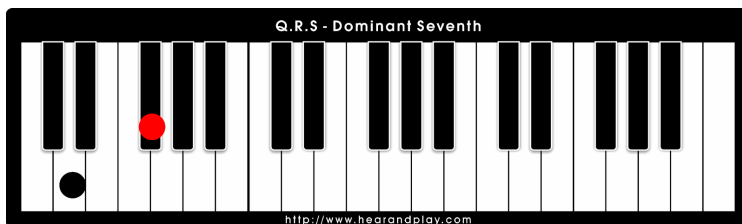
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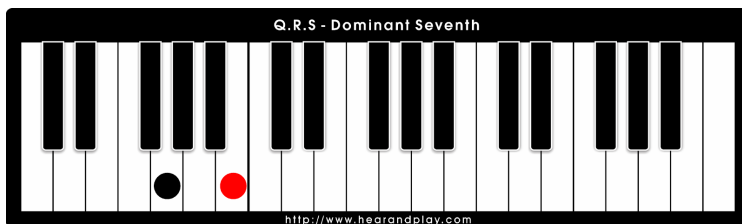
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Answer #11



Answer #12



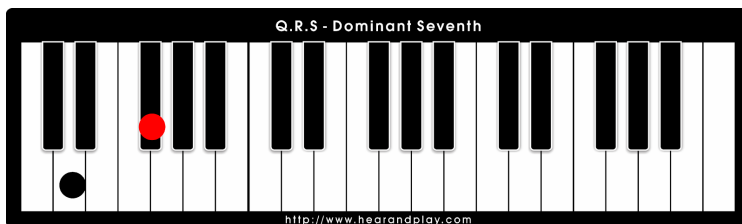
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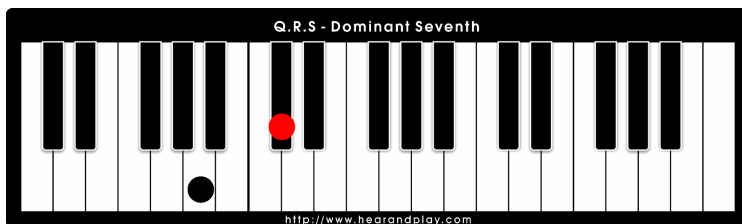
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Answer #15



Answer #16



Answer #17



Answer #18



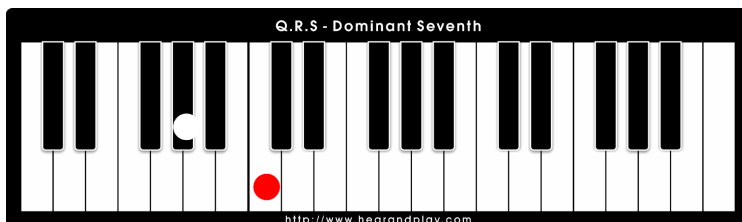
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Answer #20



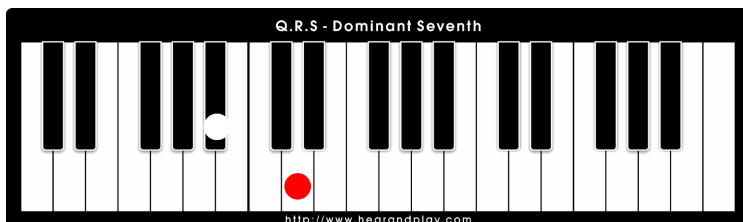
Answer #21



Answer #22



Answer #23



Answer #24



ANSWERS

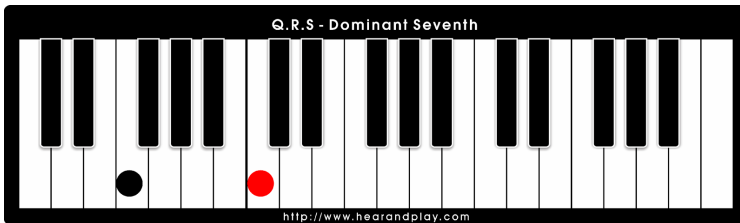
TO QUESTIONS

25 - 48

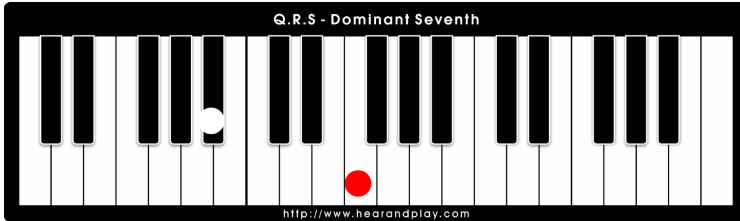
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Answer #26



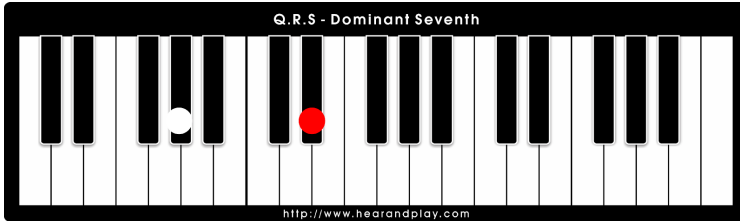
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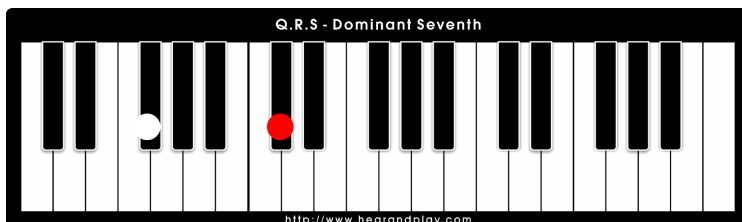
Answer #29



Answer #30



Answer #31



Answer #32



Answer #33



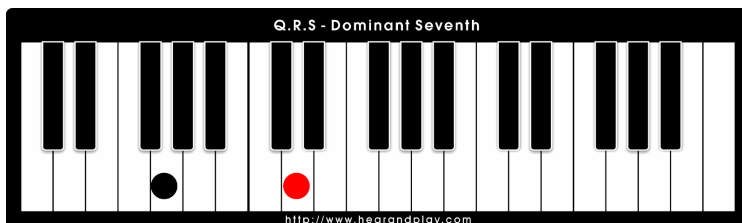
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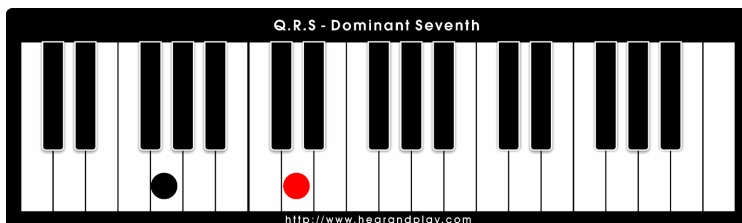
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Answer #37



Answer #38



Answer #39



Answer #40



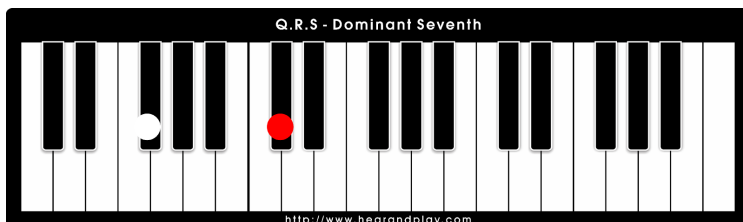
Answer #41



Answer #42



Answer #43



Answer #44



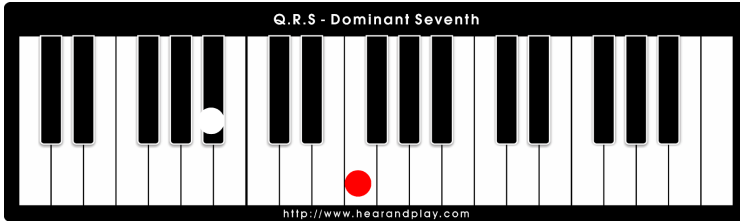
Answer #45



Answer #46



Answer #47



Answer #48



ANSWERS

TO QUESTIONS

49 - 72

Answer #49



Answer #50



Answer #51



Answer #52



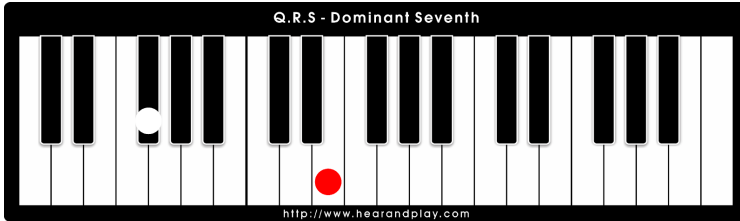
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Answer #54



Answer #55



Answer #56



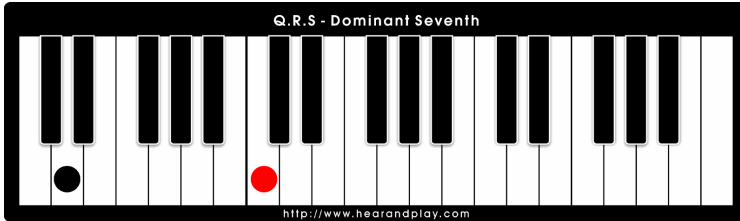
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Answer #58



Answer #59



Answer #60



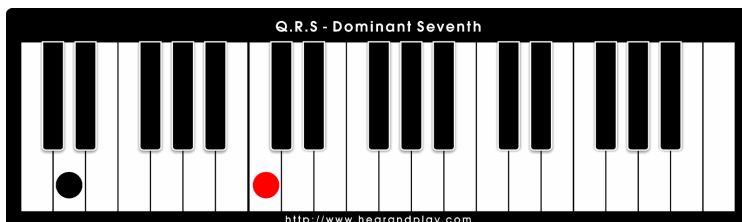
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Answer #62



Answer #63



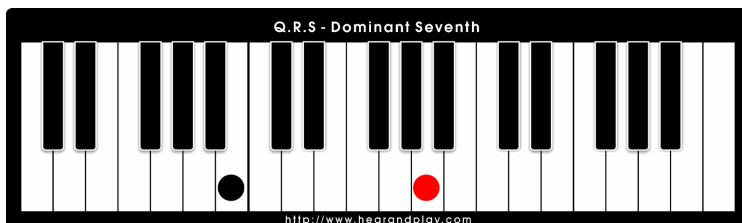
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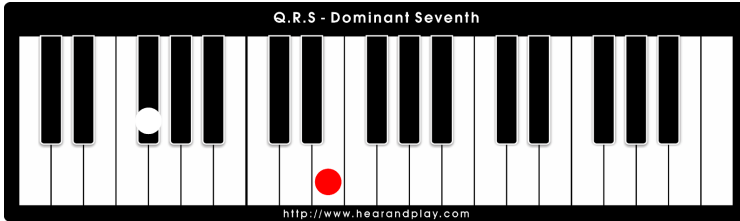
Answer #65



Answer #66



Answer #67



Answer #68



Answer #69



Answer #70



Answer #71



Answer #72



ANSWERS

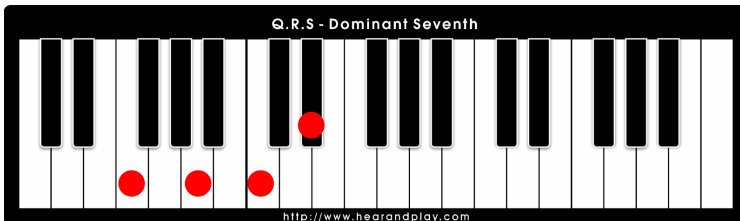
TO QUESTIONS

73 - 96

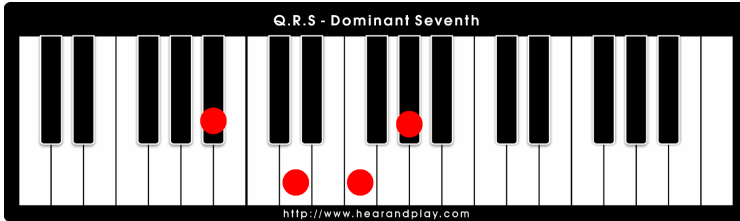
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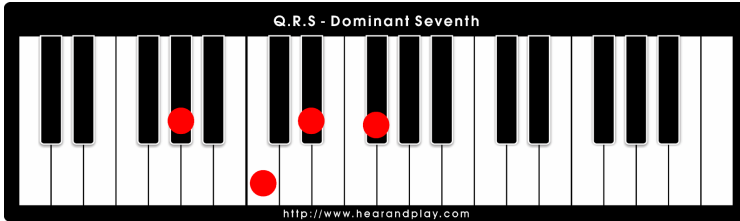
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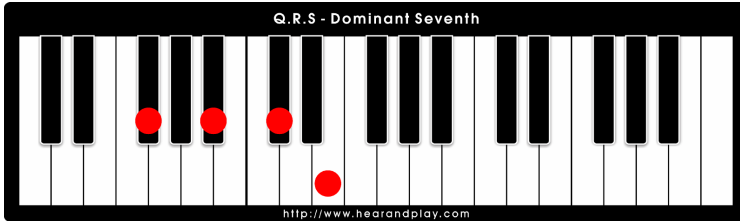
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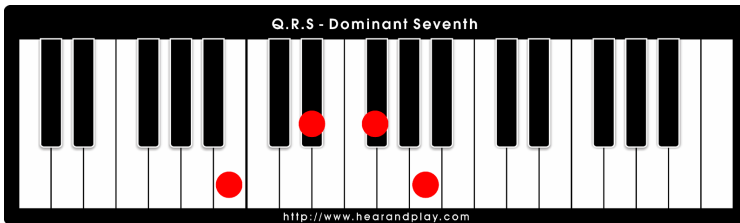
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Answer #79



Answer #80



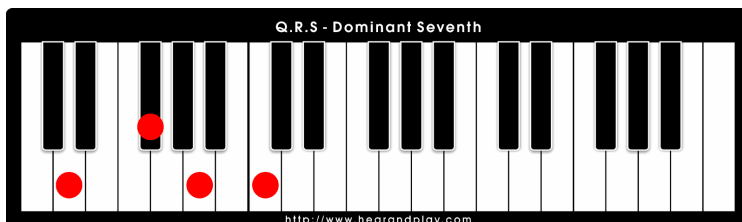
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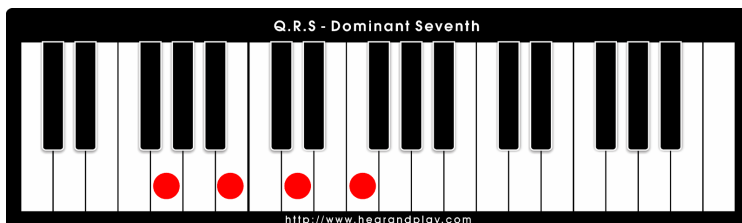
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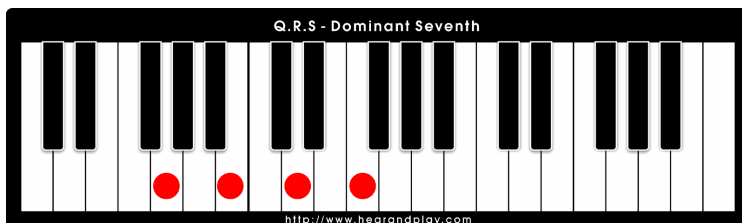
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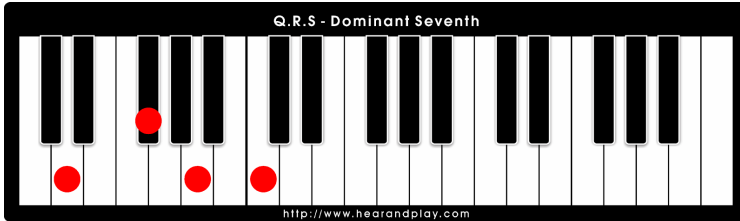
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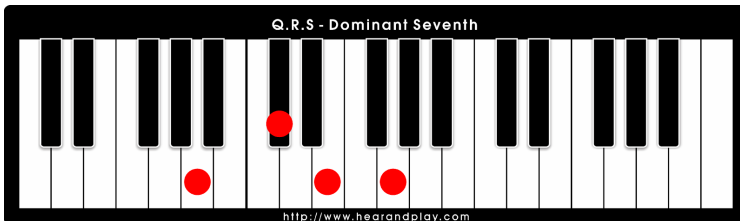
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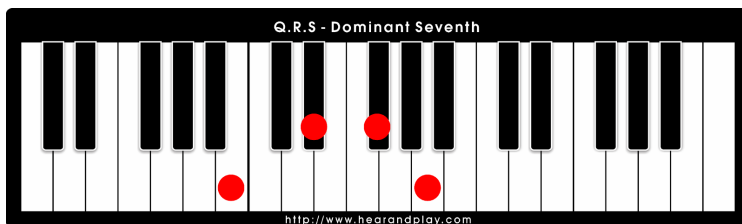
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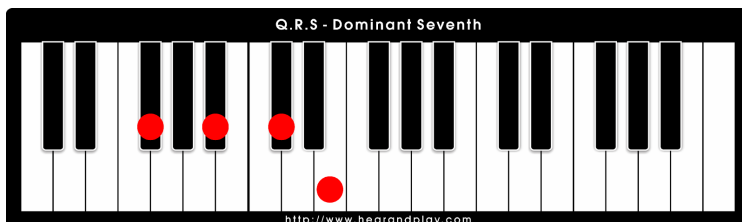
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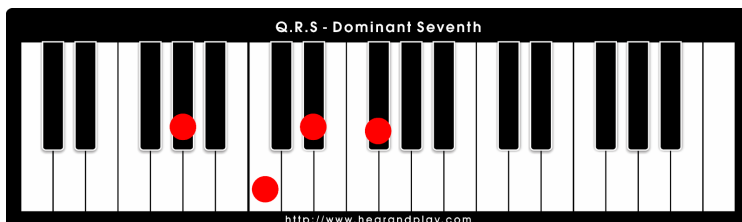
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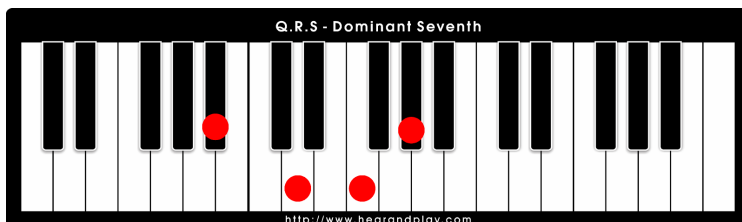
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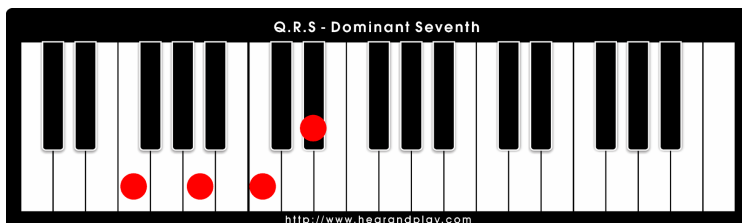
Answer #94



Answer #95



Answer #96



ANSWERS

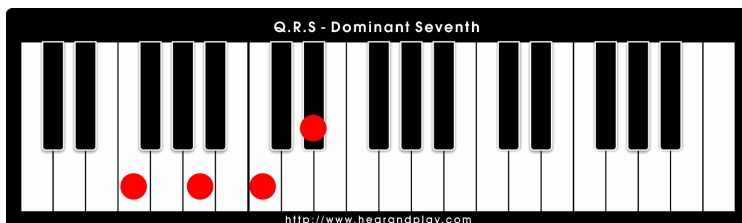
TO QUESTIONS

97 -126

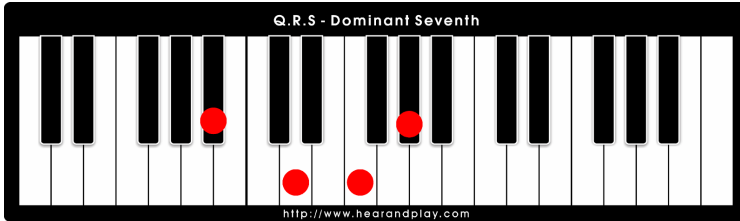
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Answer #98



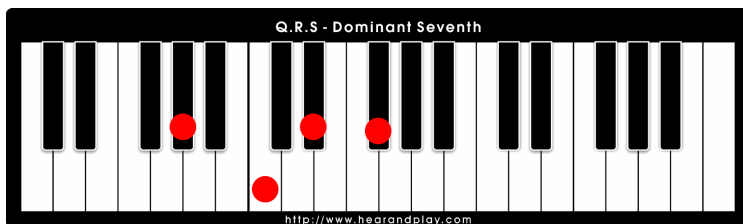
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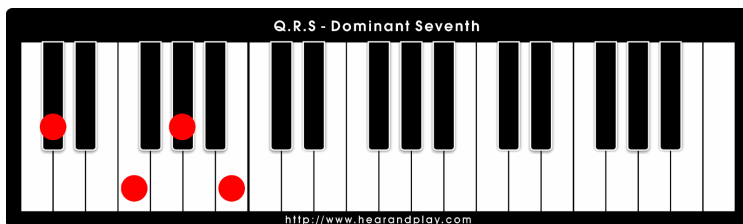
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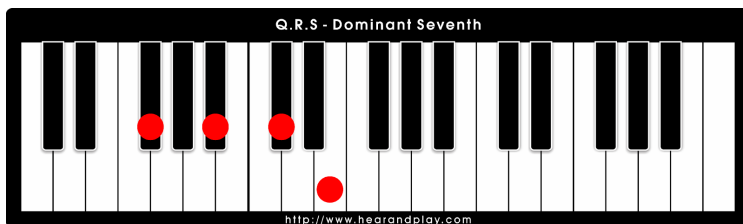
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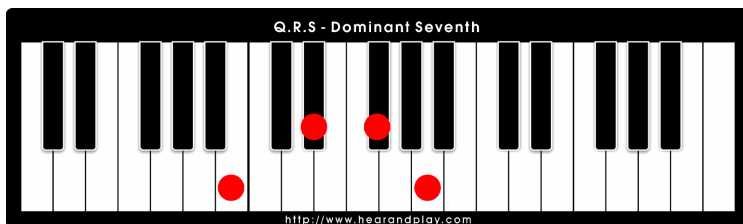
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Answer #103



Answer #104



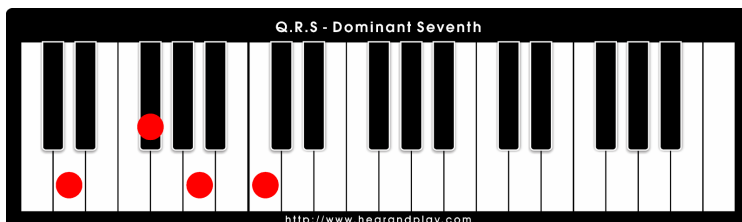
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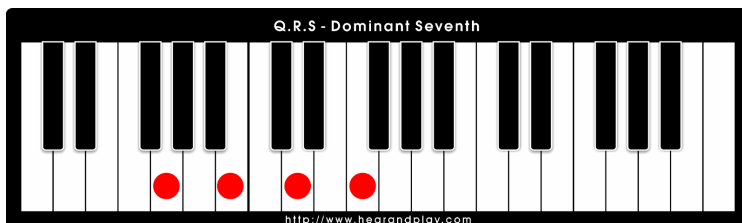
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Answer #107



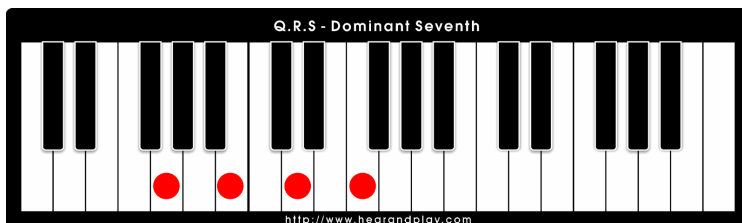
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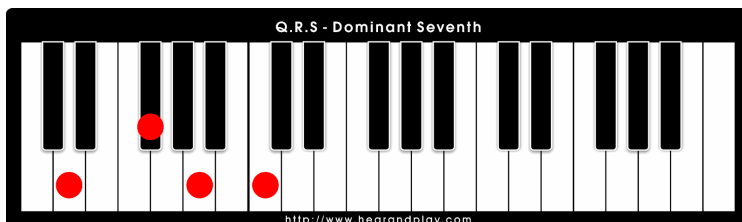
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Answer #110



Answer #111



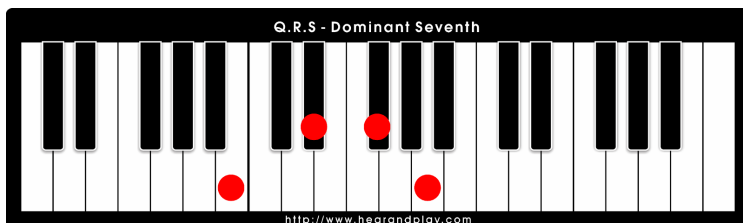
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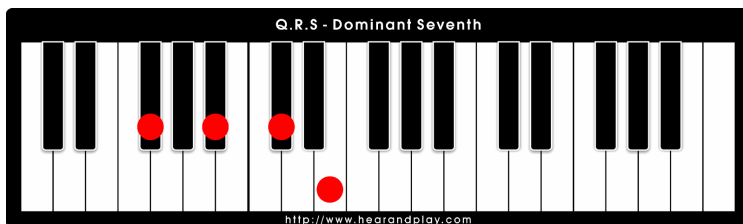
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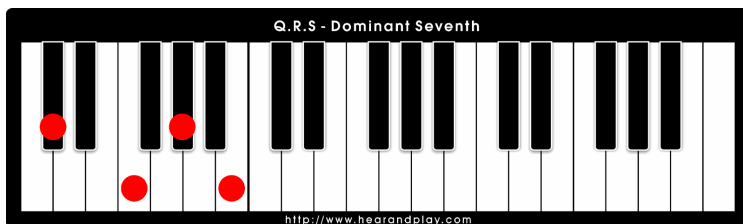
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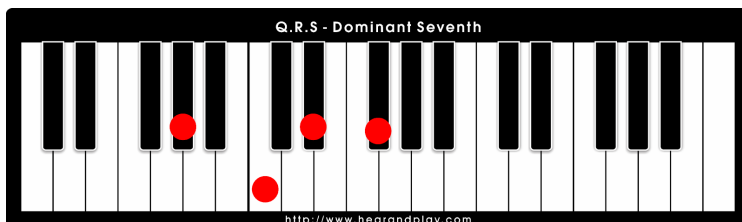
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Answer #116



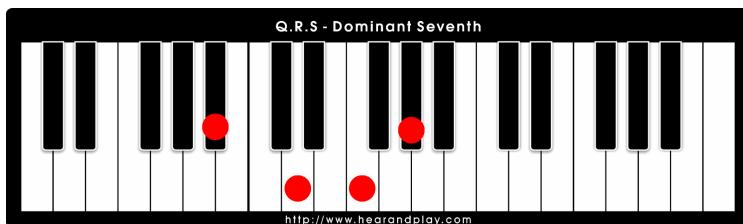
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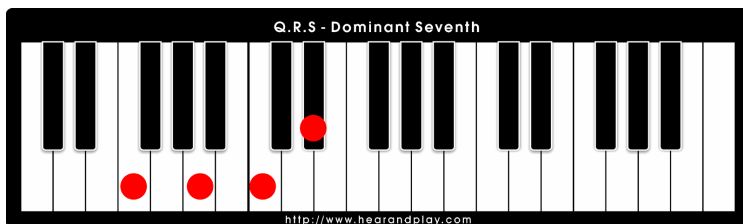
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Answer #119



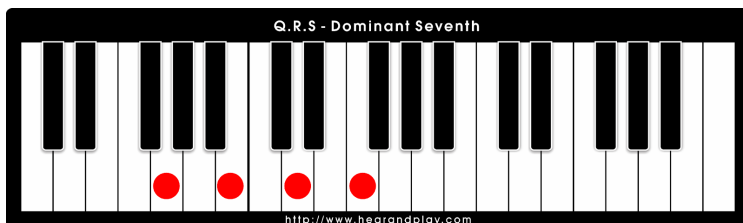
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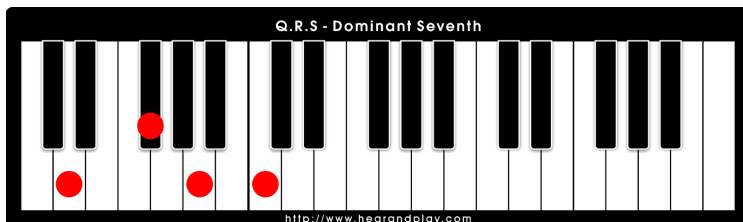
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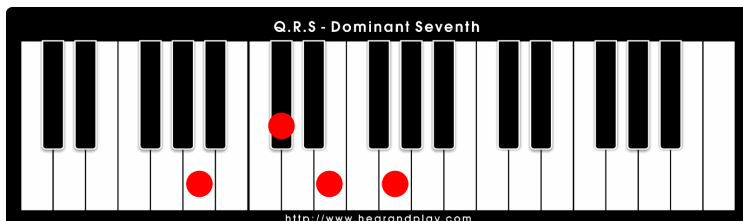
Answer #122



Answer #123



Answer #124



Answer #125



Answer #126

