



Fingerboard Surveys and Chord Formulas

The chord formula for a certain chord is like a recipe which contains the necessary ingredients (itches) for that chord.

D	F#	A
R	3	5

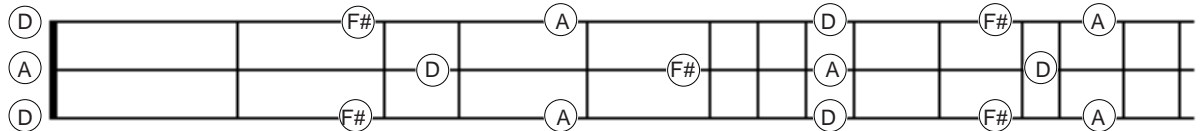
The formula for a D Major Triad is D, F#, A [Root (R), 3rd, 5th].

We can make three different types of fingerboard surveys in each chord category. Each one of these surveys may be compared to a lens through which the entire fingerboard may be viewed, and each has aspecial focus.

D Major Triad
complete chord formula:
Pitch name, top line;
interval, below

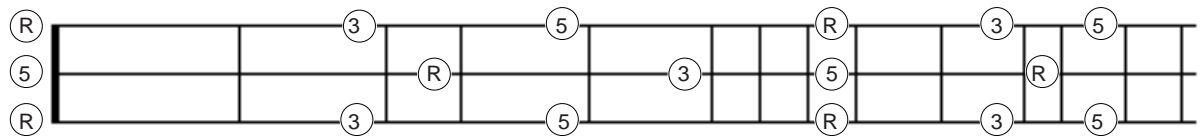
Type 1—PITCH SURVEY, D Major Triads

The **Pitch Survey** plots all possible locations of the pitches in a chord formula, and labels each location with the name of the note. All locations of D, F#, and A on the fingerboard are shown .



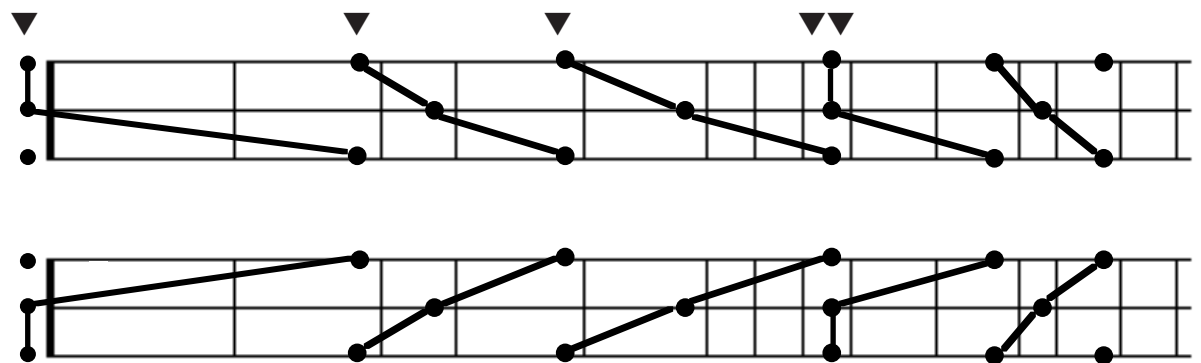
Type 2—INTERVAL SURVEY, D Major Triads

The second survey type is an **Interval Survey**, and shows the relationship of each note to the root or home tone (the first note in the chord, from which it takes its name).



Type 3—CONSTELLATION, D Major Triads

The third fingerboard survey type is a **Constellation**. It locates the ingredients of a chord formula with dots, which make it easy to see regular visual patterns like star formations. **Complete chords have three forms or patterns that repeat in sequence.** Below, arrows mark the beginning of each of the three patterns, and a double arrow marks the beginning of the repeat cycle.



An interesting and useful aspect of this tuning is that every triad form can be inverted by trading melody-string and bass-string notes and can be pivoted on the unchanging middle string note. This is possible because the melody and bass string share the same note (D) an octave apart (d and d'). The two constellation diagrams show this mirror pattern; each of the notes located in the Pitch Survey has a place in one of the three movable forms.

Chord tablature: D Major

D Major Complete Triads. Shown here in tablature format are all the complete D Major triads, from low to high on the mountain dulcimer fingerboard. They are **complete** in that each form contains all three chord formula ingredients: the Root (D), the 3rd (F#), and the 5th (A).

	Constellation a.				Constellation b.			
D	0	2	4	7	2	4	7	9
A	0	3	5	7	0	3	5	7
D	2	4	7	9	0	2	4	7

Arpeggios. Instead of sounding all the members of a chord simultaneously, they can be played in sequence, or arpeggiated.

		0			2				4			
D		0		0		3		3		5		5
A	2				4				7			
D												

D Major Complete Triads Using Open Strings. These are also chords which have all three essential ingredients, but they involve one or more open strings when the chord form is located higher on the dulcimer fingerboard. For this reason these chord forms are not movable; each form is a unique occurrence in a particular area of the fingerboard.

D	0	4	0	9	0	9	7	9
A	5	5	7	7	0	0	0	0
D	4	0	9	0	9	0	9	7

D Major Partial or Incomplete Chords Using Open Strings. Most of these chord forms lack one of the essential ingredients for a complete triad. They are shown in the most logical sequence from the lowest forms in the first few frets to the highest possible forms.

D	0	0	0	0	0	0	2	4	7	9	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0	0	3	5	7	10
D	0	2	4	7	9	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	2	4	4	7	7	9	11	11	
	0	3	3	5	5	7	10	10	12	0	3	3	5	5	7	10	10	12
	0	2	4	4	7	7	9	11	11	0	0	0	0	0	0	0	0	0

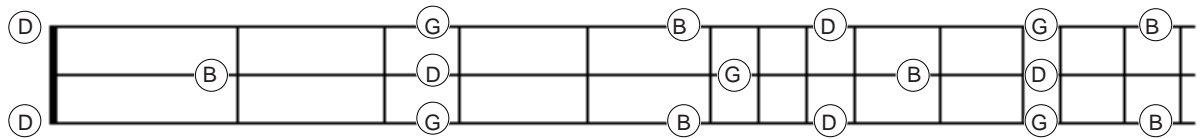
	0	0	0	0	0	2	4	7	0	0	0	0
	0	3	5	7	0	3	5	7	0	3	5	7
	0	2	4	7	0	0	0	0	2	4	7	9

There is logic in each of these sequences of chords. You may see this logic more clearly if you study the Chord Reference charts, especially the Constellation charts.

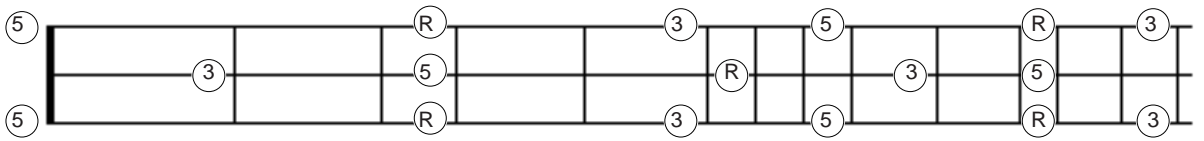
G	B	D
R	3	5

Chord Reference: G Major

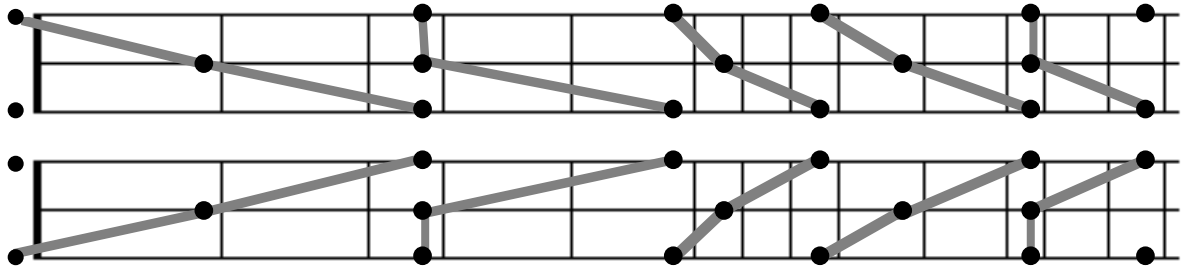
Pitch survey



Interval survey



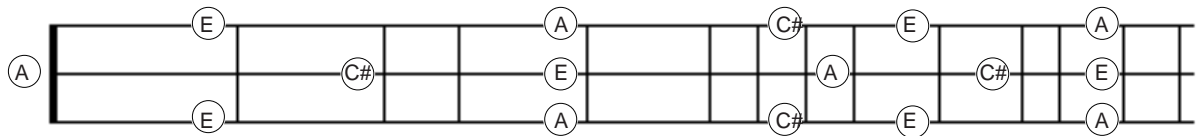
Constellations
a. and b.



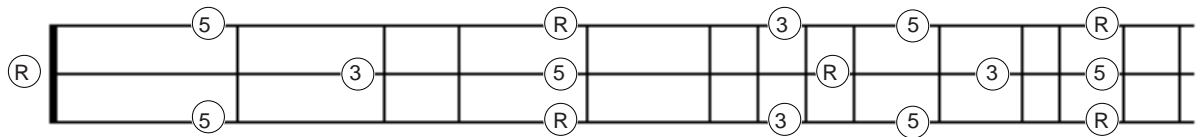
A	C#	E
R	3	5

Chord Reference: A Major

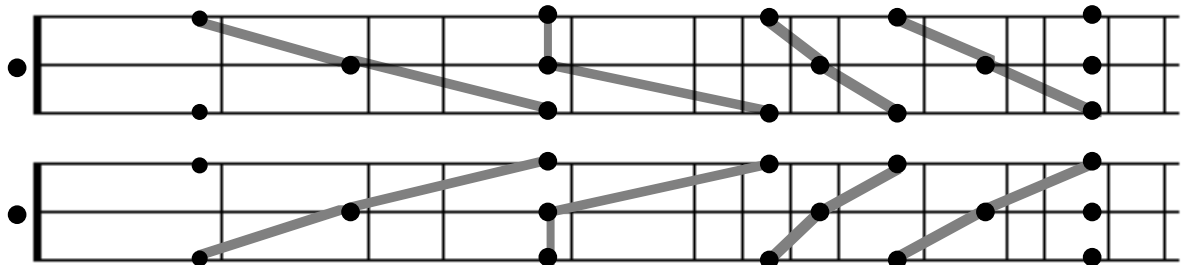
Pitch survey



Interval survey



Constellations
a. and b.



Tuning D-A-D

Chord tablature: G Major

G Major Complete Triads

Constellations a.
and b.

D	0	3	5	7	3	5	7	10		
A	1	3	6	8	1	3	6	8		
D	3	5	7	10	0	3	5	7		

Arpeggios

D			0				3				5	
A		1		1		3		3		6		6
D	3				5				7			

G Major Complete Triads Using Open Strings

D	0	5	0	10				
A	6	6	8	8				
D	5	0	10	0				

G Major Partial or Incomplete Chords Using Open Strings.

D	0	0	0	0	0	0	0	0	0	3	3	5	5	7	7	10	10	
A	1	1	3	3	6	6	8	8	10	1	1	3	3	6	6	8	8	10
D	0	3	3	5	5	7	7	10	10	0	0	0	0	0	0	0	0	

	0	0	0	0	0	0	0	0	0	3	5	7	10			
	1	3	6	8	10	13		1	3	6	8		1	3	6	8
	0	0	0	0	0	0		3	5	7	10		0	0	0	0

	0	0	0	0	0	3	5	7	10	10		
	1	3	6	8		1	3	6	8	8	10	
	0	3	5	7		0	0	0	0	0	0	

Chord tablature: A Major

A Major Complete Triads

Constellations a.
and b.

D	1	4	6+	8	4	6+	8	11
A	2	4	7	9	2	4	7	9
D	4	6+	8	11	1	4	6+	8

Arpeggios.

D			1			4			6+		8	
A		2		2		4		4		7		7
D	4				6+		8					11

A Major Complete Triads Using Open Strings

D	6+	8		
A	0	0		
D	8	6+		

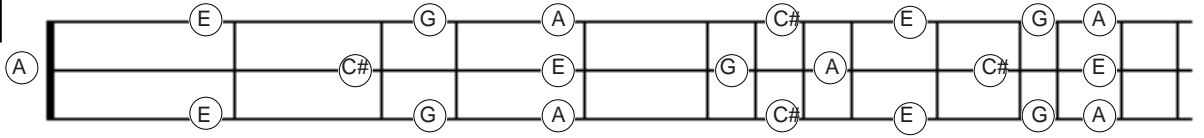
A Major Partial or Incomplete Chords Using Open Strings.

D	1	1	4	4	4	6+
A	0	0	0	4	0	0
D	1	4	1	4	6+	4

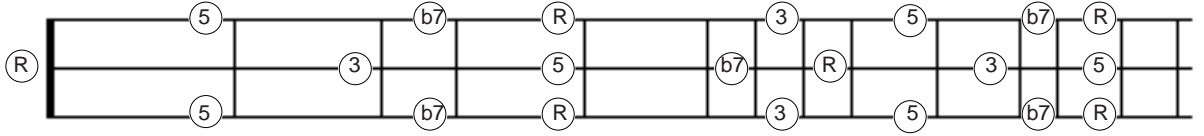
A	C#	E	G
R	3	5	b7

Chord Reference: A Seventh (A7)

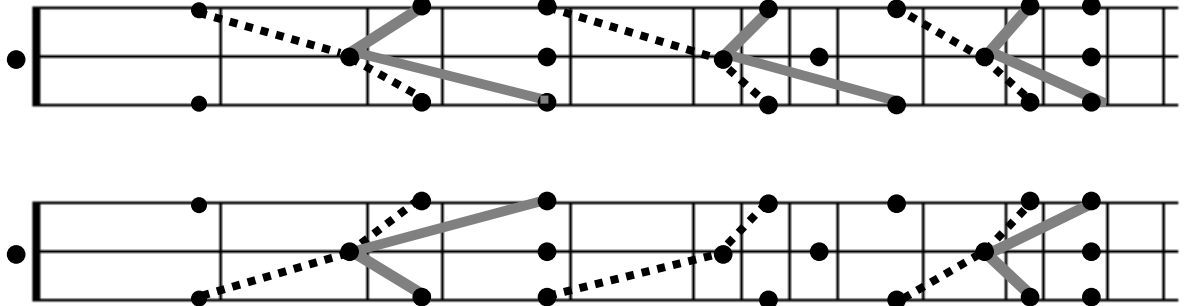
Pitch survey



Interval survey



Constellations
a. and b.



Tuning D-A-D

Chord tablature: A Seventh (A7)

A Seventh Chords (Movable forms, consecutively higher)

Constellations
a. and b.

D	1	3	4	6+	8	10	3	4	6+	10	11
A	2	2	6	6	9	9	2	2	6	9	9
D	3	4	6+	8	10	11	1	3	4	8	10

Partial or Incomplete A Seventh Chords

D	1	3	4	3	3	4	6+	6+	6+	8	10
A	0	0	4	4	2	6	6	6	0	0	0
D	3	1	3	4	4	6+	4	8	8	10	8

Moving through various Partial A Major and A Seventh Chords with open middle string:

D	1	1	3	4	4	6+	6+	8	8	1	3	4	4	6+	6+	8	8	10
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	1	3	4	4	6+	6+	8	8	10	1	1	3	4	4	6+	6+	8	8

	1	3	4	6+	8	10					
	0	0	0	0	0	0					
	1	3	4	6+	8	10					

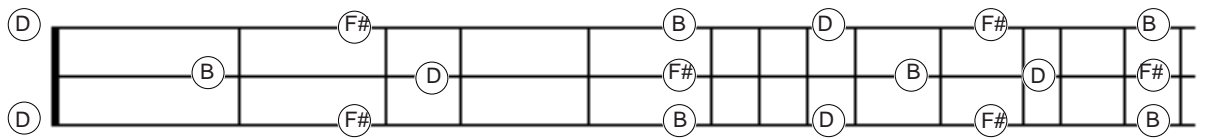
A Seventh Chords. There are four notes in the formula for a Dominant Seventh Chord (R, 3, 5, flat 7). Obviously, on a three-string mountain dulcimer, it's impossible to play a complete A Seventh chord—one of the ingredients has to go. Which one, then, do we leave out?

If we leave out the 5th (E) we're left with a Root (A), 3rd (C#), and a flat 7 (G). This gives us a tense, anxious, A Seventh chord that really wants to resolve back into the I chord (D). For a less tense, more stable A Seventh, leave out the 3rd (C#), so the chord is left with the Root (A), the 5th (E), and the flat 7 (G).

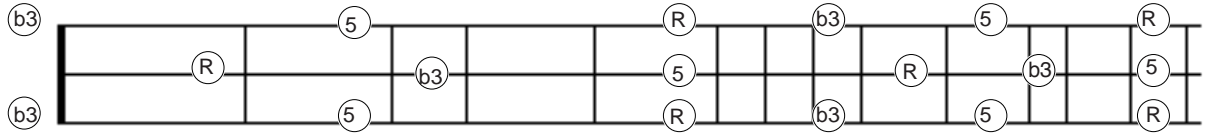
B	D	F#
R	b3	5

Chord Reference: B minor (Bm)

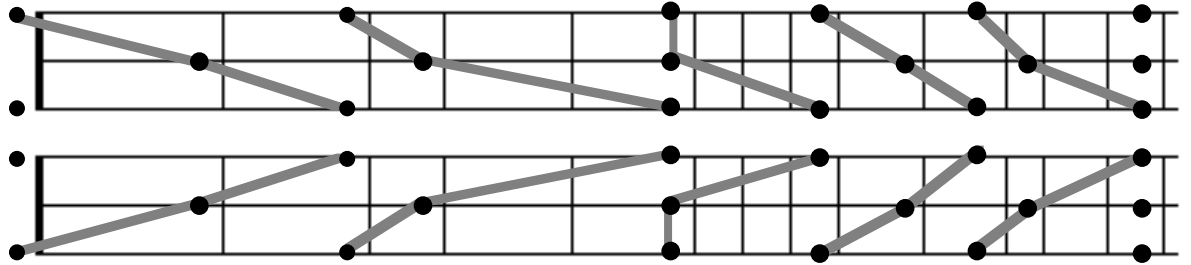
Pitch survey



Interval survey



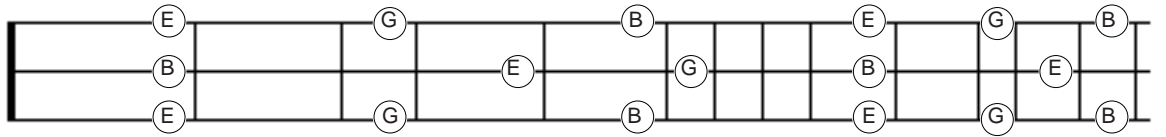
Constellations
a. and b.



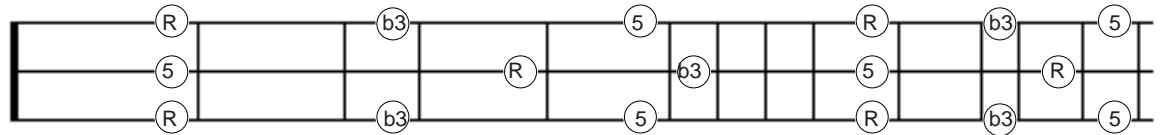
E	G	B
R	b3	5

Chord Reference: E minor

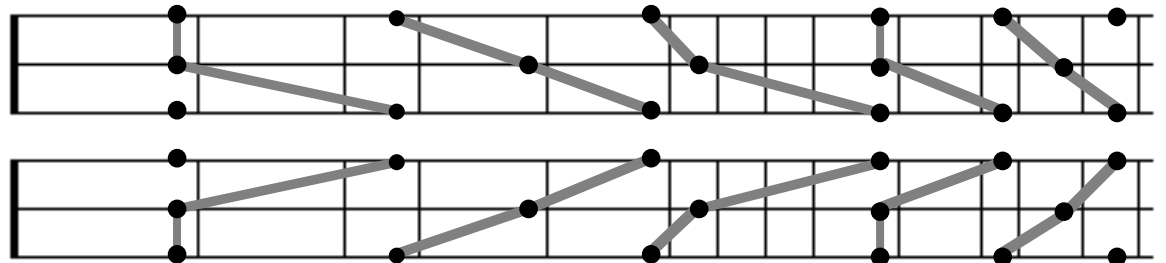
Pitch survey



Interval survey



Constellations
a. and b.



Tuning D-A-D

Chord tablature: B minor (Bm)

B minor Complete Triads (Movable forms, consecutively higher voicings)

Constellations
a. and b.

D	0	2	5	7			2	5	7	9		
A	1	3	5	8			1	3	5	8		
D	2	5	7	9			0	2	5	7		

Arpeggios

			0					2								5		
D			1					3								5		
A			1					3								5		
D	2							5								7		

B minor Complete Triads Using Open Strings

D	5	0		0	9		12	0				
A	5	5		8	8		12	12				
D	0	5		9	0		0	12				

Incomplete B minor Chords (with no flat 3)

D	2	5	5	9	9	12						
A	1	5	5	8	8	12						
D	2	5	9	9	12	12						

Chord tablature: E minor (Em)

E minor Complete Triads (Movable forms, consecutively higher)

Constellations
a. and b.

D	1	3	5	8			3	5	8	10		
A	1	4	6	8			1	4	6	8		
D	3	5	8	10			1	3	5	8		

Arpeggios

			1						3								5		
D			1					4								6			
A			1					4								6			
D	3							5								8			

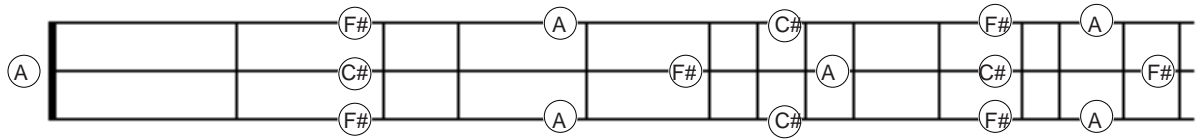
Incomplete E minor Chords (with no flat 3)

D	1	5	5	8	8							
A	1	4	4	8	8							
D	1	5	8	8	12							

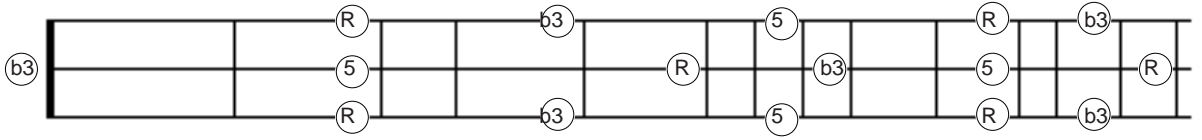
F#	A	C#
R	b3	5

Chord Reference: F# minor

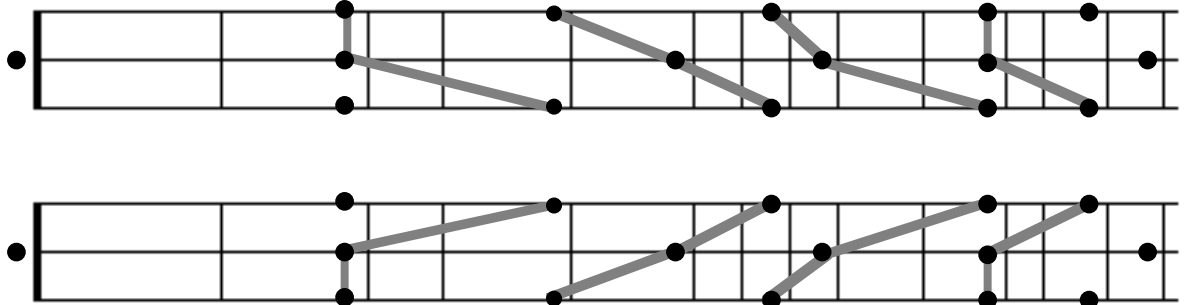
Pitch survey



Interval survey



Constellations a. and b.



Tuning D-A-D

Chord tablature: F# minor (F#m)

F# minor Complete Triads (Movable forms, consecutively higher voicings)

Constellations
a. and b.

D	2	4	6+	9	4	6+	0	11
A	2	5	7	9	2	5	7	9
D	4	6+	9	11	2	4	6+	9

Arpeggios.

D			2				4									6+				
A			2				5									7				7
D	4						6+									9				

F# minor Complete Triads Using Open Strings

D	6+	9																
A	0	0																
D	9	6+																

Incomplete F# minor Chords (no flat 3)

D	2	6+	6+	9	9													
A	2	5	5	9	9													
D	2	6+	9	9	13+													