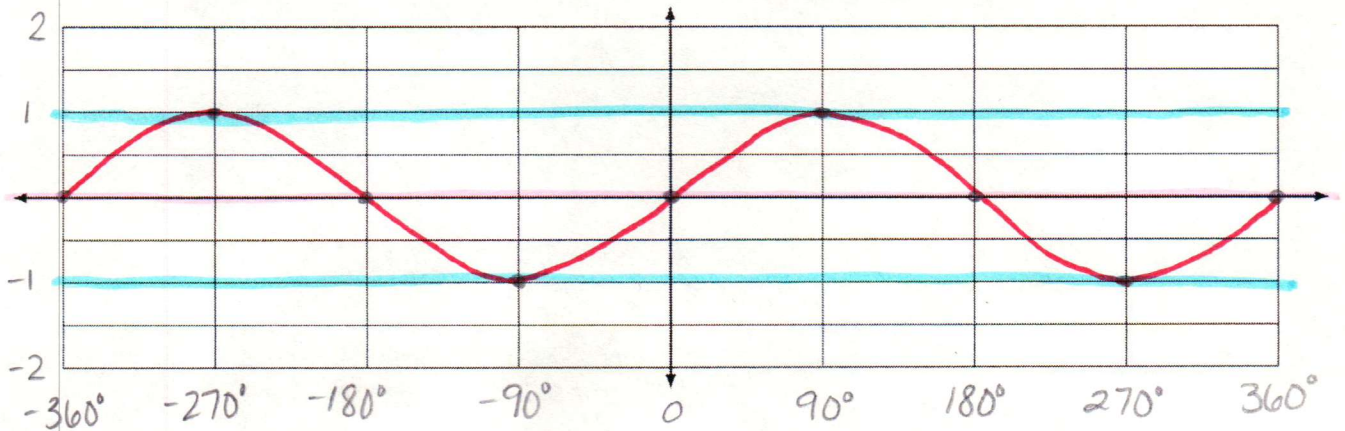


Notes 7.2 – Periodic Graphs

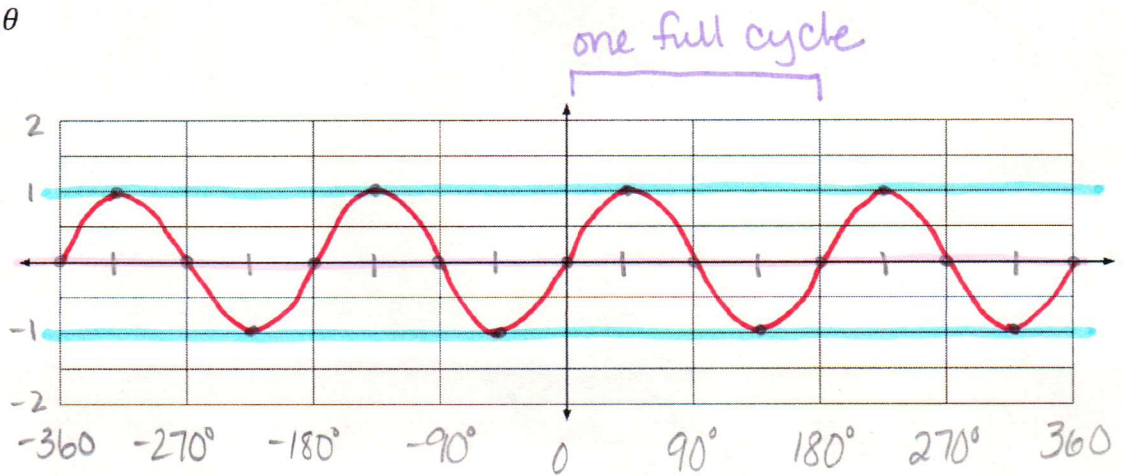
Graph $y = \sin\theta$ The basic graph has an amplitude of 1 and a vertical shift of 0.



Today we will be changing the period of the graph.

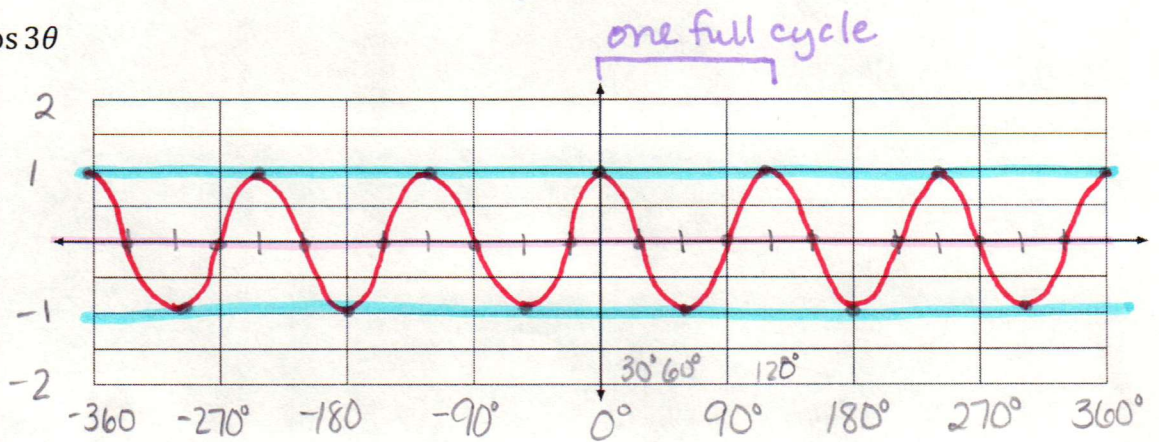
Graph $y = \sin 2\theta$

θ	$\sin 2\theta$
0	0
45	1
90	0
135	-1
180	0



Period: 180° ← one full cycle

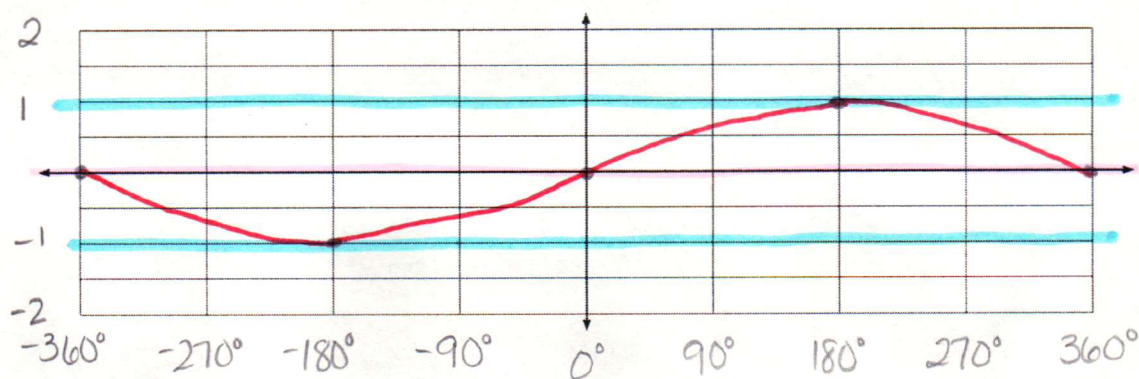
Graph $y = \cos 3\theta$



Period: 120° ← one full cycle

Period - The length of one full cycle of a periodic function $\frac{360}{b} = \text{period}$

Graph $y = \sin \frac{1}{2}\theta$



Period:
 720°

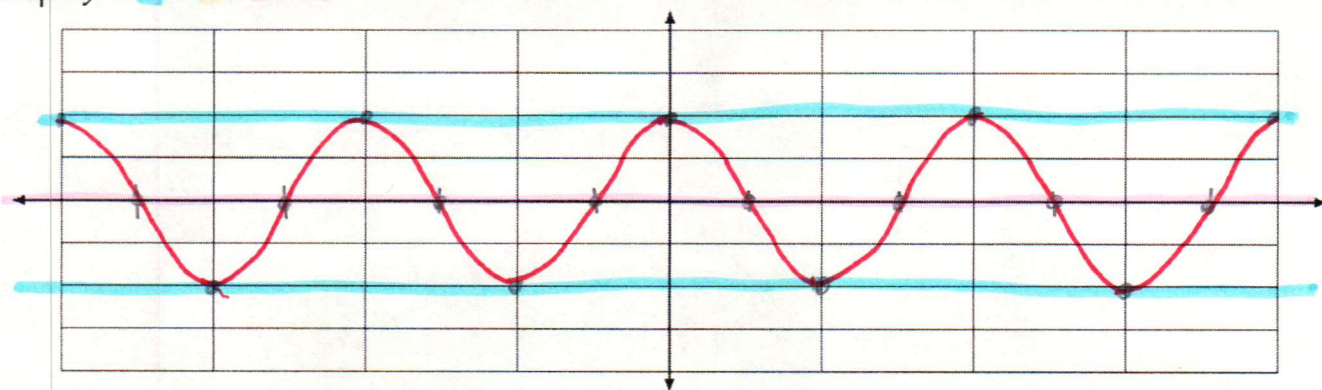
$$y = a \sin b\theta + d$$

amplitude \rightarrow a \leftarrow vertical shift d
 b determines period

Steps for graphing:

1. mark the center of the graph using the vertical shift
2. mark the height of graph from the center using the amplitude
3. mark the center line using the b to cut each box into b pieces
4. Determine points on graph using the pattern for that function.

Graph $y = 2\cos 2\theta$

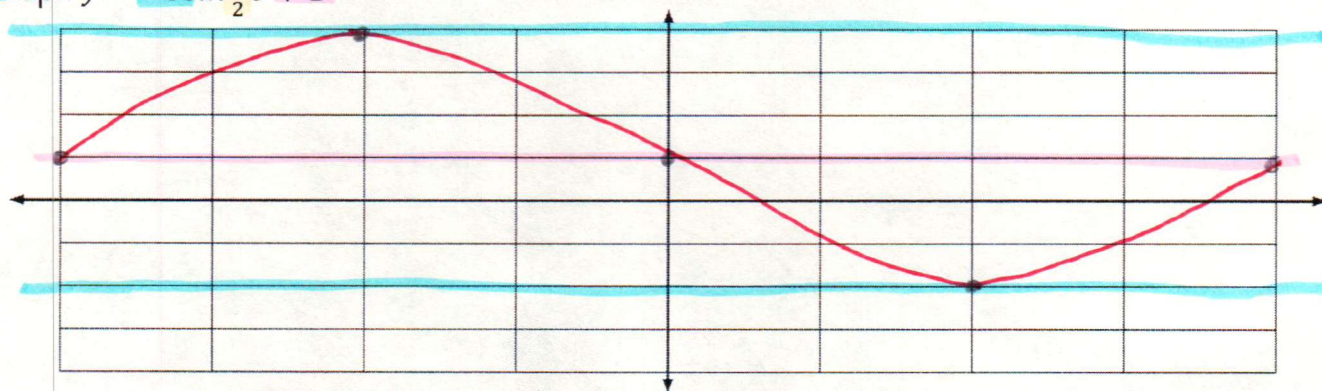


Amplitude: 2

Vertical Shift: 0

Period: $180^\circ \leftarrow \frac{360^\circ}{2}$

Graph $y = -3\sin \frac{1}{2}\theta + 1$

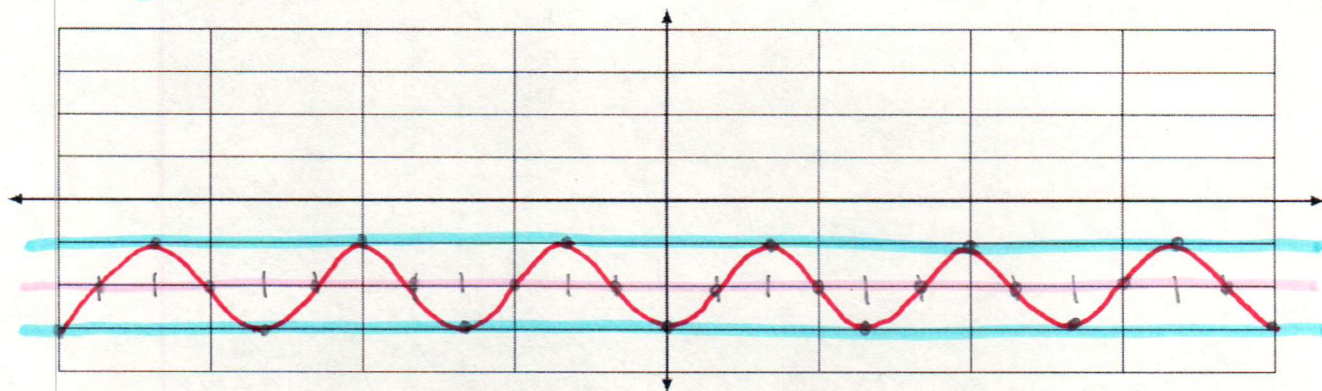


Amplitude: 3

Vertical Shift: 1

Period: $720^\circ \leftarrow \frac{360^\circ}{\frac{1}{2}}$

Graph $y = -\cos 3\theta - 2$



Amplitude: 1

Vertical Shift: -2

Period: $120^\circ \leftarrow \frac{360^\circ}{3}$