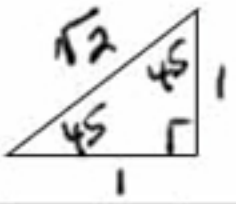
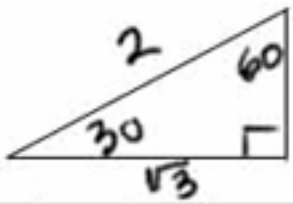
To graph $y = \sin\theta$ we will have to remember several values of the sine function.

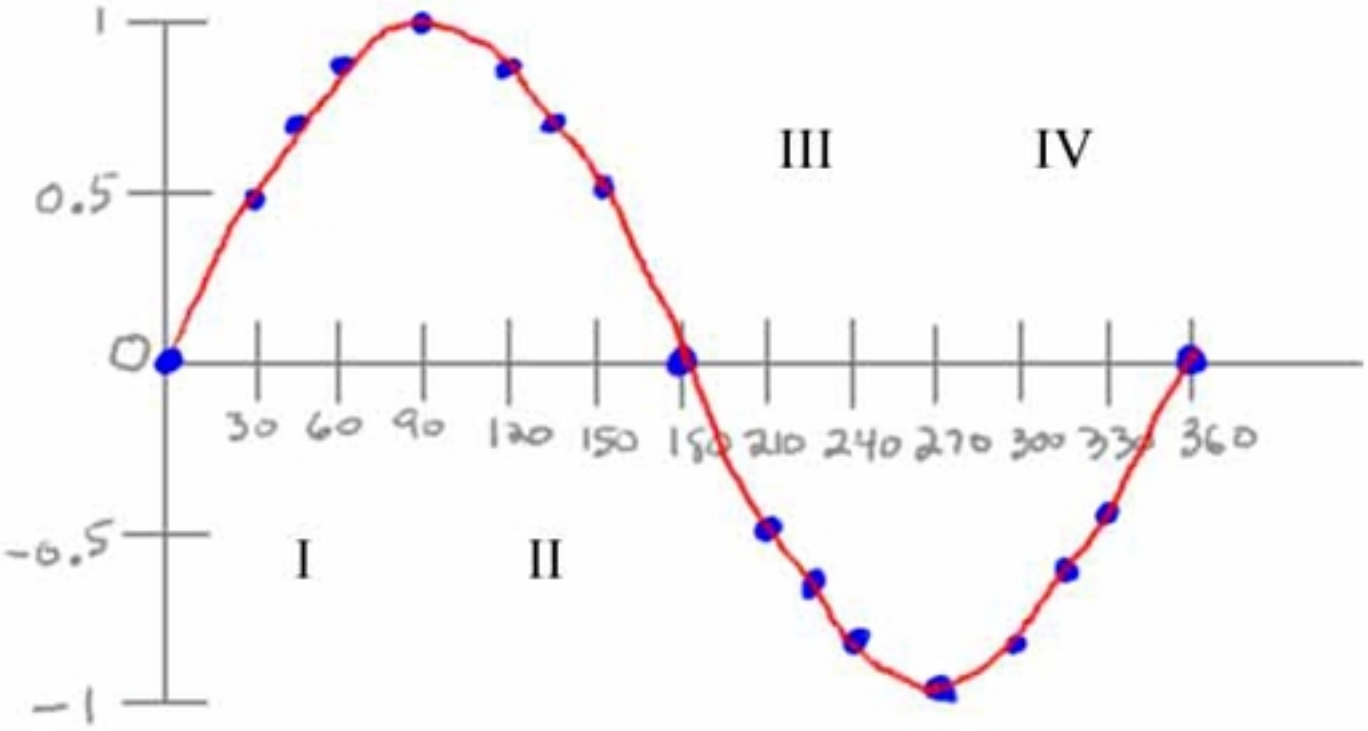




$\sqrt{2} \doteq 1.414$

$\sqrt{3} \doteq 1.732$

Degrees	0	30	45	60	90	120	135	150	180	210	225	240	270	300	315	330	360
Radians	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{7\pi}{6}$	$\frac{5\pi}{4}$	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$	$\frac{7\pi}{4}$	$\frac{11\pi}{6}$	2π
Sinθ	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$\frac{-1}{2}$	$\frac{-\sqrt{2}}{2}$	$\frac{-\sqrt{3}}{2}$	-1	$\frac{-\sqrt{3}}{2}$	$\frac{-\sqrt{2}}{2}$	$\frac{-1}{2}$	0



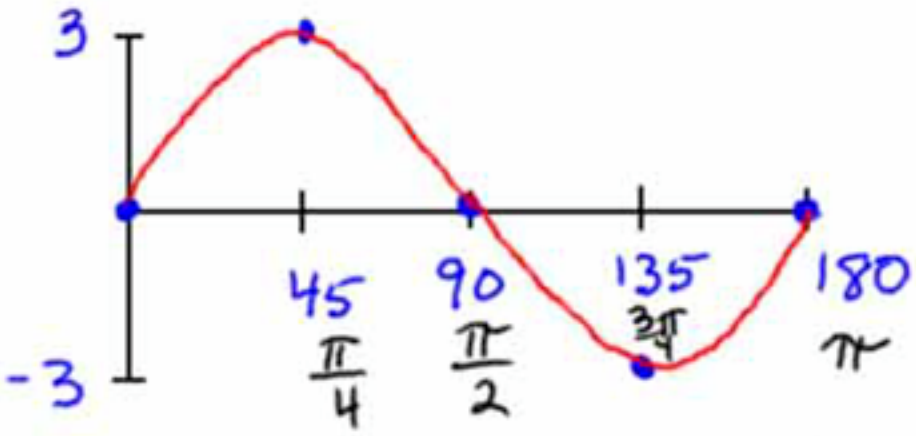
For Homework you will follow the above example and graph the Cosine function.

Sine and Cosine are called **Periodic Functions** because their basic shape repeats every 360° or 2π radians. The period for these two functions is therefore, 360° or 2π radians.
Think of the Sine curve as a horizontal "***S***" shape and Cosine as a "***U***" shape.

Let's look at general Sine and Cosine functions and their graphs
$y = A \text{ Sin } B\theta$
$y = A \text{ Cos } B\theta$
A represents the **Amplitude** of the graph, this is half the difference between the maximum and minimum values.
If ***A*** is a negative number, your graph is reflected across the *x*-axis.
B helps you find the period of the graph. To calculate the period, divide 360° or 2π by the absolute value of ***B***, $|B|$.

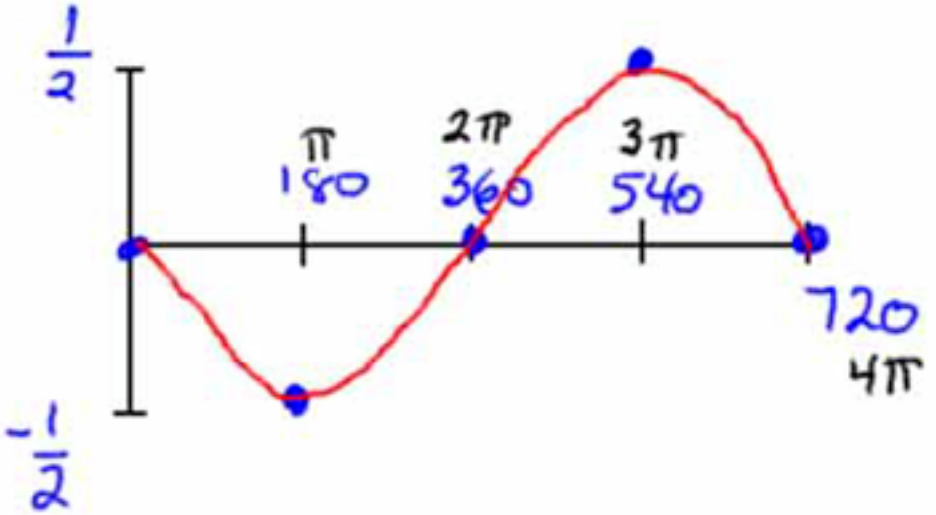
Let's look at some characteristics of the Sine graph:
1) at 0° or 0 radians its value is 0
2) at one fourth of its period it reaches its maximum value
3) half way through its period it is 0
4) three fourths of its period it reaches its minimum value
5) at the end of its period it is again 0
6) if ***A*** is negative, the placement of the maximimum and minimum values are reversed (a reflection across the *x*-axis).

Ex 1) Sketch the graph of: $y = 3 \sin 2\theta$.



Amplitude = 3
Period = 180° or π radians

Ex 2) Sketch the graph of: $y = -\frac{1}{2}\sin\frac{1}{2}\theta$

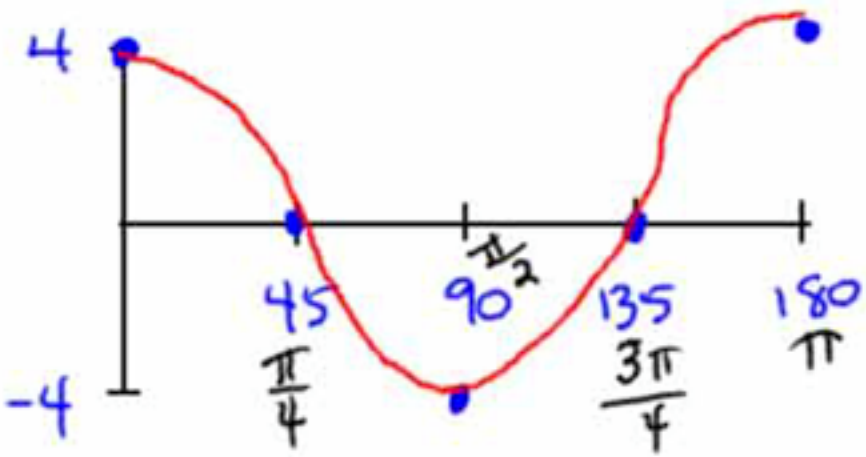


Amplitude = 1/2
Period = 720° or 4π
Negative sign creates reflection of graph over *x*- axis.

Let's look at some characteristics of the Cosine graph:

1) at 0° or 0 radians it reaches its maximum value
2) at one fourth of its period it is 0 (zero)
3) half way through its period it reaches its minimum value
4) three fourths of its period it is 0 (zero) again
5) at the end of its period it reaches its maximum value again
6) if ***A*** is negative, the placement of the maximimum and minimum values are reversed (a reflection across the *x*-axis).

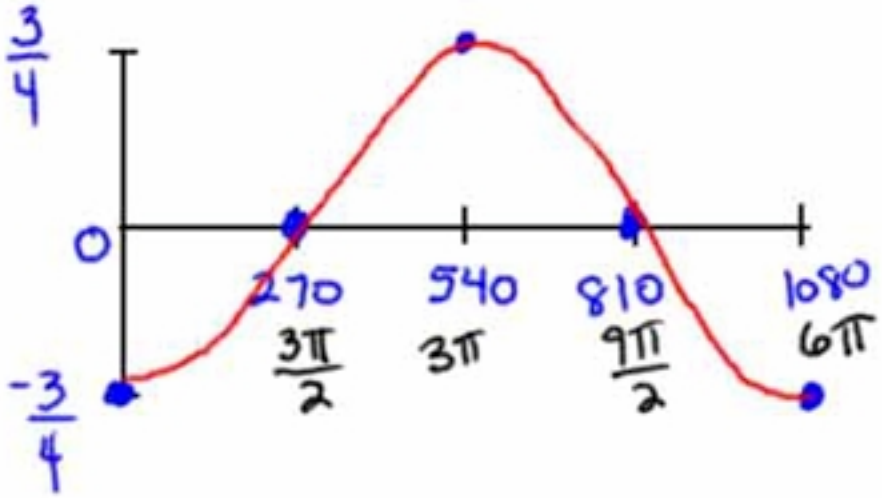
Ex 3) Sketch the graph of: $y = 4 \cos 2\theta$



Amplitude = 4

Period = 180° or π

Ex 4) Sketch the graph of: $y = -\frac{3}{4}\cos\frac{1}{3}\theta$



Amplitude = 3/4
Period = 1080° or 6π