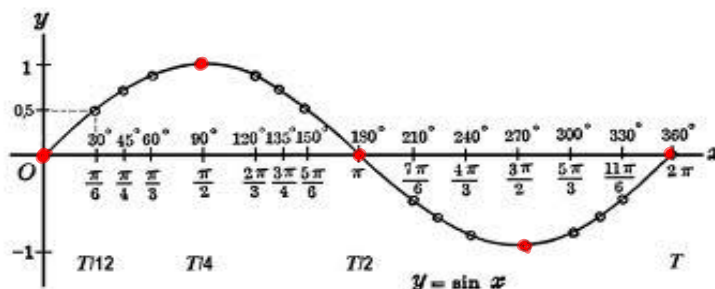


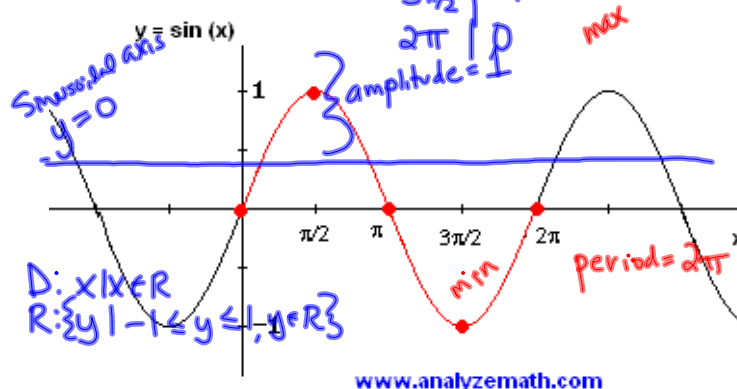
# Chapter 5 : Sine & Cosine Functions

## The Sine Curve



### Five Key Points

x	y
0	0
$\pi/2$	1
$\pi$	0
$3\pi/2$	-1
$2\pi$	0



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### Terms

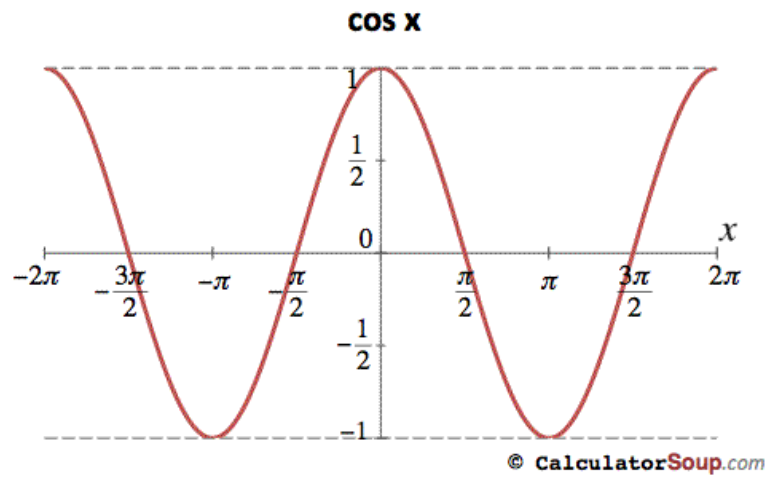
**Periodic Functions:** a function that repeats over regular intervals (cycles) of its domain. (sine & cosine are both periodic)

**period:** length of one cycle

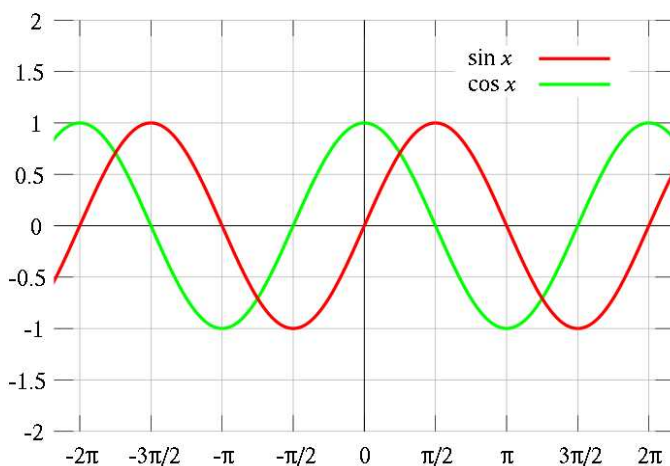
**Sinusoidal curve:** wave-like pattern

**Sinusoidal Axis:** centre horizontal line, cuts the wave in half.

**Amplitude:** the height from the sinusoidal axis to the maximum or minimum.



period =  $2\pi$   
 S.A:  $y = 0$   
 Amp:  $1$   
 D:  $\{x | x \in \mathbb{R}\}$   
 R:  $\{y | -1 \leq y \leq 1, y \in \mathbb{R}\}$   
 max =  $1$   
 min =  $-1$   
 $\left\{ \begin{array}{l} \text{X-intercepts: } \frac{\pi}{2} + \pi n, n \in \mathbb{Z} \\ \text{y-int} = 1 \end{array} \right.$



$\text{cos} \rightarrow \text{sin}$   
 Horizontal  
 Shift of  $\frac{\pi}{2}$