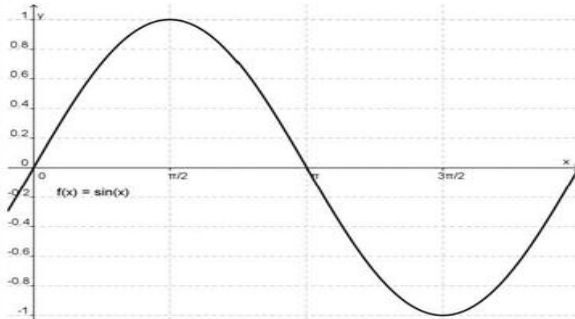


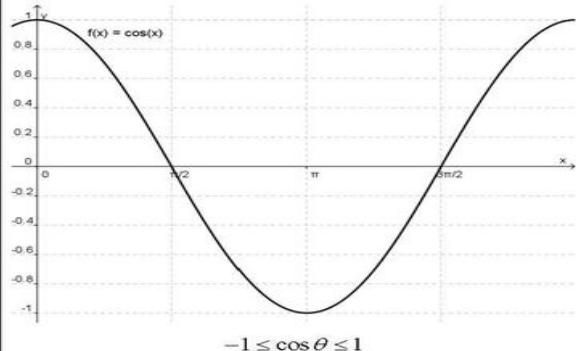
**Graphs**

**(1) Sine**



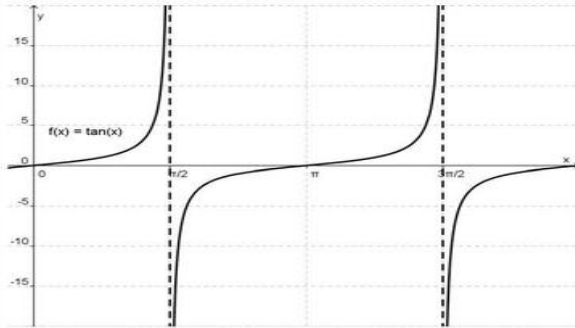
$-1 \leq \sin \theta \leq 1$

**(2) Cosine**



$-1 \leq \cos \theta \leq 1$

**(3) Tangent**



$-\infty \leq \tan \theta \leq \infty$

**General Form:**

$y = a \sin b(x \pm \theta) + c$

$y = a \cos b(x \pm \theta) + c$

$y = a \tan b(x \pm \theta) + c$

Where  $a$  affects the amplitude,

$b$  affects the frequency (no. of cycles),

$c$  shifts the graph up or down,

$\theta$  shifts the graph left or right (phase shift).

For tangent graph, there are 2 asymptotes for  $0 \leq x \leq 2\pi$ .

**Conversion between angles in degrees and radians**

$x^\circ$	$60^\circ$	$120^\circ$	$180^\circ$	$240^\circ$	$300^\circ$	$360^\circ$
$x \text{ rad}$	$\frac{\pi}{3}$	$\frac{2\pi}{3}$	$\frac{3\pi}{3}$	$\frac{4\pi}{3}$	$\frac{5\pi}{3}$	$\frac{6\pi}{3}$

$\pi \text{ rad} = 180^\circ$

$x^\circ$	$45^\circ$	$90^\circ$	$135^\circ$	$180^\circ$	$225^\circ$	$270^\circ$	$315^\circ$	$360^\circ$
$x \text{ rad}$	$\frac{\pi}{4}$	$\frac{2\pi}{4}$	$\frac{3\pi}{4}$	$\frac{4\pi}{4}$	$\frac{5\pi}{4}$	$\frac{6\pi}{4}$	$\frac{7\pi}{4}$	$\frac{8\pi}{4}$

$x^\circ$	$30^\circ$	$60^\circ$	$90^\circ$	$120^\circ$	$150^\circ$	$180^\circ$	$210^\circ$	$240^\circ$	$270^\circ$	$300^\circ$	$330^\circ$	$360^\circ$
$x \text{ rad}$	$\frac{\pi}{6}$	$\frac{2\pi}{6}$	$\frac{3\pi}{6}$	$\frac{4\pi}{6}$	$\frac{5\pi}{6}$	$\frac{6\pi}{6}$	$\frac{7\pi}{6}$	$\frac{8\pi}{6}$	$\frac{9\pi}{6}$	$\frac{10\pi}{6}$	$\frac{11\pi}{6}$	$\frac{12\pi}{6}$