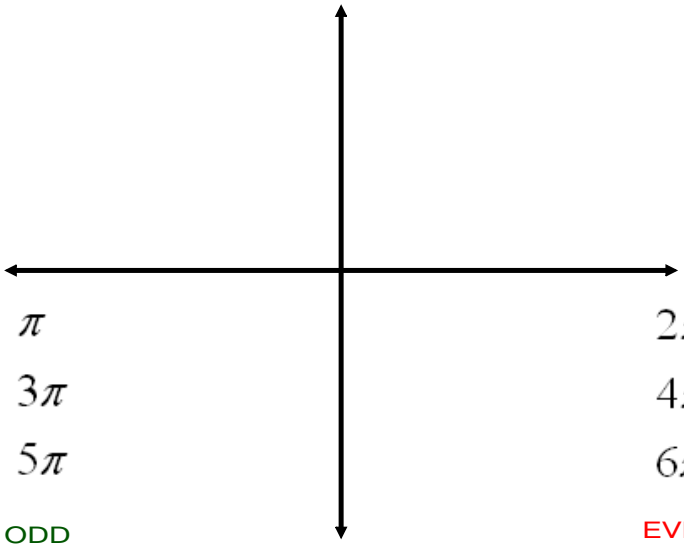
Remember!

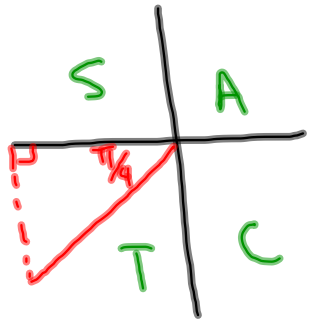


Warm up

Evaluate without the use of a calculator:

$\frac{12\pi}{4}, \frac{13\pi}{4}, \frac{14\pi}{4}$

3π



$\cos^2 13\pi/4 - 2\sin \pi/6$

$\left(\frac{-1}{\sqrt{2}}\right)^2 - 2\left(\frac{1}{2}\right)$

$\frac{1}{2} - \frac{2}{2}$

$\boxed{-\frac{1}{2}}$

Graph the following:

$$2y = 4\cos(\theta + \frac{\pi}{6}) - 2$$

$$y = 2\cos[(\theta + \frac{\pi}{6})] - 1$$

$$(x, y) \rightarrow \left(\frac{x}{k} + C, Ay + D\right)$$

A = 2

k = 1

C = $-\pi/6$

D = -1

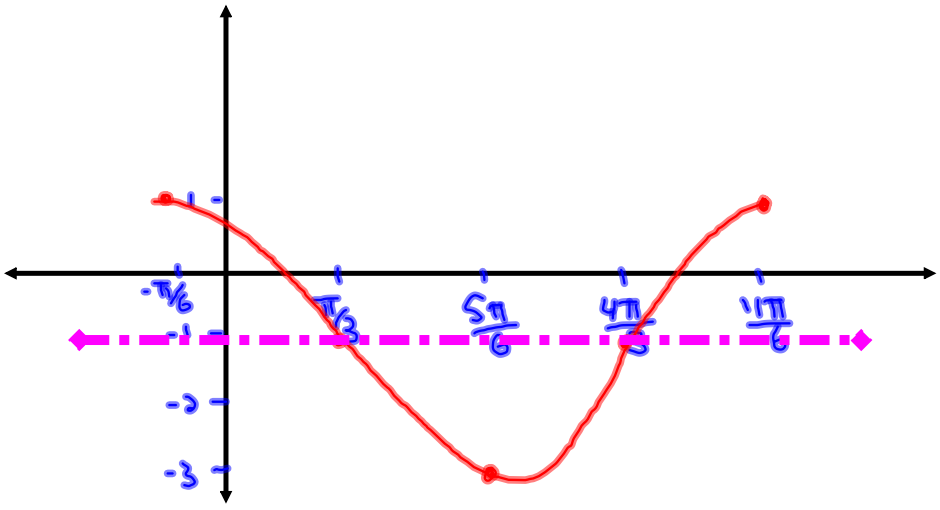
P = 2π

$y = \cos\theta$

θ	y
0	1
$\pi/2$	0
π	-1
$3\pi/2$	0
2π	1

New points after mapping

θ	y
$-\pi/6$	1
$2\pi/6 = \pi/3$	-1
$5\pi/6$	-3
$8\pi/6 = 4\pi/3$	-1
$11\pi/6$	1



Solving Trigonometric Equations

$\pi-\theta$	θ
$\pi+\theta$	$2\pi-\theta$

Factor

$$\cos^2\theta-\frac{1}{2}\cos\theta=0, \qquad 0\le\theta\le 2\pi$$

$$\left(\cos\theta\right)\left(\cos\theta-\tfrac{1}{2}\right)=0$$

$\cos\theta=0$

$\theta=\frac{\pi}{2},\frac{3\pi}{2}$

$\cos\theta-\frac{1}{2}=0$

$\cos\theta=\frac{1}{2}$ $\quad \text{ref}\theta=\frac{\pi}{3}$

Quad 1

$\theta=\frac{\pi}{3}$

Quad 4

$\theta=2\pi-\frac{\pi}{3}$

$=\frac{6\pi}{3}-\frac{\pi}{3}$

$=\frac{5\pi}{3}$

Solving Trigonometric Equations

$\pi-\theta$	θ
$\pi+\theta$	$2\pi-\theta$

Factor

$\sin^2\theta-\sin\theta=2 \qquad -2\pi\le\theta\le 2\pi$

$\sin^2\theta-\sin\theta-2=0$

$(\sin\theta-2)(\sin\theta+1)=0$

$\sin\theta-2=0$ ~~$\sin\theta=2$~~ Not Possible

$\sin\theta+1=0$

$\sin\theta=-1$

$\theta=\frac{3\pi}{2},\frac{-\pi}{2}$

$\frac{3\pi}{2}-2\pi$

$\frac{3\pi}{2}-\frac{4\pi}{2}$

$-\frac{\pi}{2}$

Homework

Finish worksheet