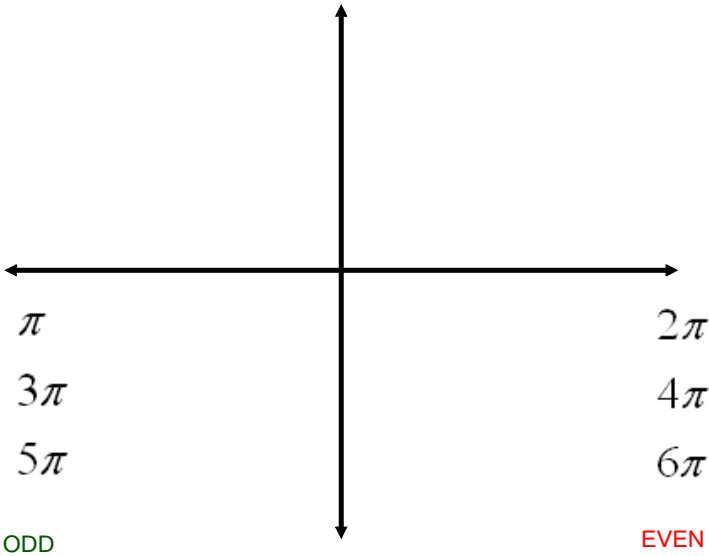
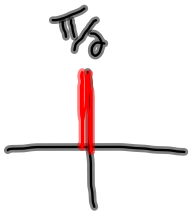


Remember!



$$-\frac{2\pi}{3} + \frac{2\pi}{1}$$

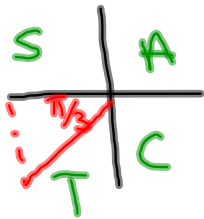
⑧ b)



$$\csc\left(\frac{2\pi}{4}\right) \sin\left(-\frac{2\pi}{3}\right) \cot\left(\frac{5\pi}{4}\right)$$

$$\csc\left(\frac{\pi}{2}\right) \sin\left(\frac{4\pi}{3}\right) \cot\left(\frac{5\pi}{4}\right)$$

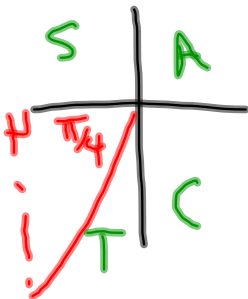
$$\frac{3\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$$



$$\left(\frac{1}{1}\right) \left(\frac{-\sqrt{3}}{2}\right) \left(\frac{+1}{1}\right)$$

$$\boxed{\frac{-\sqrt{3}}{2}}$$

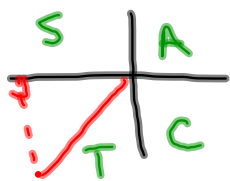
$$\frac{4\pi}{4}, \frac{5\pi}{4}, \frac{6\pi}{4}$$



Warm Up

Evaluate without the use of a calculator:

$$\frac{15\pi}{3}, \frac{16\pi}{3}, \frac{17\pi}{3}$$



$$\cos\left(\frac{16\pi}{3}\right) \tan^2\left(\frac{23\pi}{6}\right) + \csc\left(\frac{11\pi}{2}\right) + \sin^2\left(\frac{27\pi}{4}\right)$$

$$\left(-\frac{1}{2}\right) \left(\frac{1}{\sqrt{3}}\right)^2 + (-1) + \left(\frac{1}{\sqrt{2}}\right)^2$$

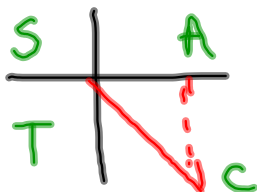
$$\left(-\frac{1}{2}\right) \left(\frac{1}{3}\right) - 1 + \left(\frac{1}{2}\right)$$

$$-\frac{1}{6} - \frac{6}{6} + \frac{3}{6}$$

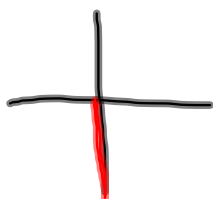
$$-\frac{4}{6}$$

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

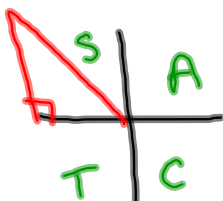
$$\frac{22\pi}{6}, \frac{23\pi}{6}, \frac{24\pi}{6}$$



$$\frac{10\pi}{2}, \frac{11\pi}{2}, \frac{12\pi}{2}$$



$$\frac{26\pi}{4}, \frac{27\pi}{4}, \frac{28\pi}{4}$$



Graph the following:

$$y = \underline{2} \cos\left(\theta + \frac{\pi}{\underline{2}}\right) + \underline{0}$$

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

A = 2

$y = \cos\theta$

k = 1

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

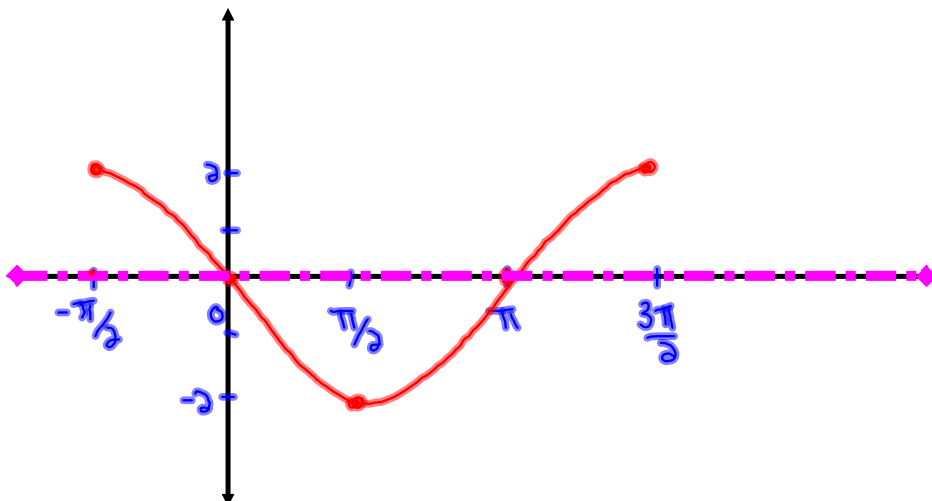
D = 0

P = 2π

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

New points after mapping

θ	y
$-\pi/2$	2
0	0
$\pi/2$	-2
$2\pi/2 = \pi$	0
$3\pi/2$	2



Graph the following:

$$P = \frac{2\pi}{k} = \frac{2\pi}{1} = 2\pi$$

$$y = \underline{2} \sin\left(x - \frac{\pi}{\underline{4}}\right) + \underline{1}$$

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

$$A = 2$$

$$y = \sin \theta$$

$$k = 1$$

$$C = \frac{\pi}{4}$$

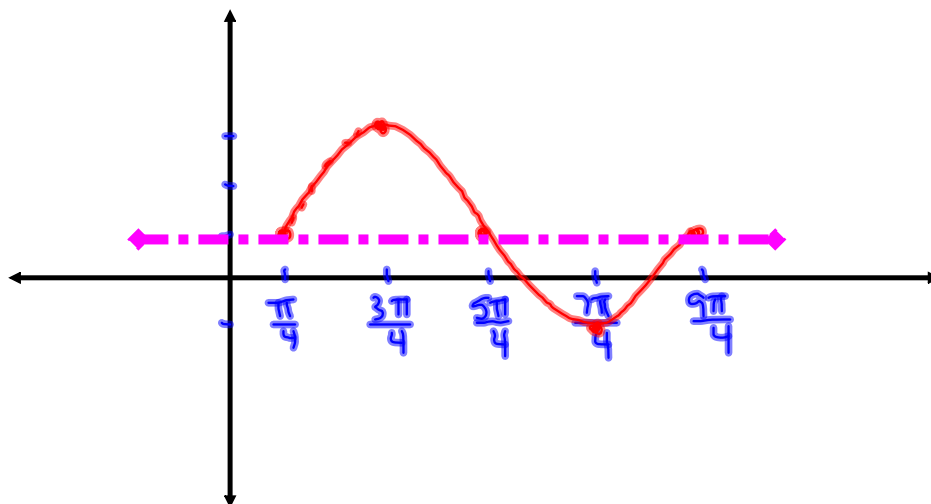
$$D = 1$$

$$P = 2\pi$$

θ	y
0	0
$\frac{\pi}{2}$	1
π	0
$\frac{3\pi}{2}$	-1
2π	0

New points after mapping

θ	y
$\frac{\pi}{4}$	1
$\frac{3\pi}{4}$	3
$\frac{5\pi}{4}$	1
$\frac{7\pi}{4}$	-1
$\frac{9\pi}{4}$	1



Homework

Finish worksheet

① a) $y = 2 \sin(x + \frac{\pi}{4})$

$A = 2$

$K = 1$

$P = 2\pi$

$C = -\frac{\pi}{4}$

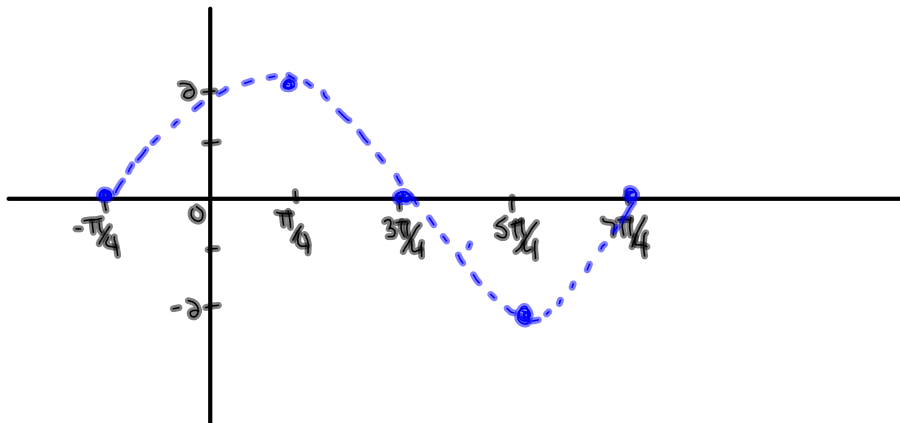
$D = 0$

$y = \sin x$

x	y
0	0
$\frac{\pi}{2}$	1
π	0
$\frac{3\pi}{2}$	-1
2π	0



x	y
$-\frac{\pi}{4}$	0
$\frac{\pi}{4}$	2
$\frac{3\pi}{4}$	0
$\frac{5\pi}{4}$	-2
$\frac{7\pi}{4}$	0



② a) $\frac{2 \cos \pi + \sin \frac{\pi}{4}}{\cos \frac{\pi}{3}}$

$\frac{2(-1) + \frac{\sqrt{2}}{2}}{\frac{1}{2}}$

$\frac{1}{2}$

$\left[-2 + \frac{\sqrt{2}}{2} \right] \times 2$

$-4 + \sqrt{2}$

①b) $y = 3\cos(x - \frac{\pi}{3}) + 2$

$A = 3$

$K = 1$

$P = 2\pi$

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

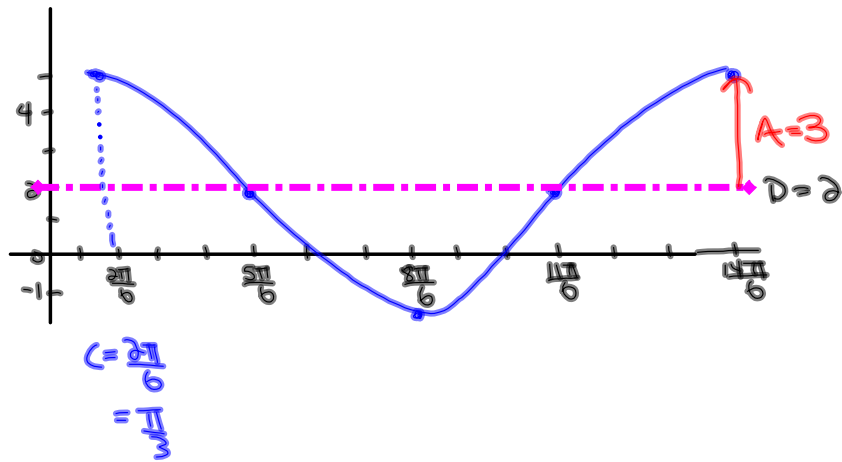
$D = 2$

$y = \cos x$

x	y
0	1
$\frac{\pi}{2}$	0
π	-1
$\frac{3\pi}{2}$	0
2π	1

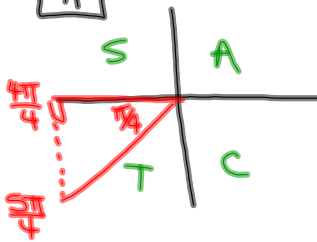
→

x	y
$\frac{\pi}{3}$	5
$\frac{5\pi}{6}$	2
$\frac{4\pi}{3}$	-1
$\frac{11\pi}{6}$	2
$\frac{7\pi}{3}$	5



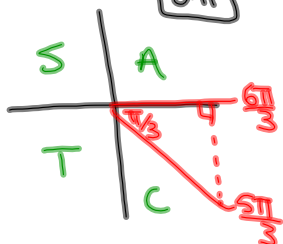
$\frac{4\pi}{4}, \frac{5\pi}{4}, \frac{6\pi}{4}$

π



$\frac{4\pi}{3}, \frac{5\pi}{3}, \frac{6\pi}{3}$

2π



②b) $\frac{3\sin \frac{5\pi}{4} \cos \frac{5\pi}{3}}{\sin \frac{4\pi}{3}}$

$\frac{3(-\frac{\sqrt{2}}{2})(\frac{1}{2})}{(-\frac{\sqrt{3}}{2})}$

$\frac{-3\sqrt{2}}{4} \times \frac{2}{\sqrt{3}}$

$\frac{3\sqrt{2} \cdot \sqrt{3}}{2\sqrt{3} \cdot \sqrt{3}}$

$\frac{3\sqrt{6}}{6}$

$\frac{\sqrt{6}}{2}$

$$\textcircled{1} \text{ c) } 2y = 4\cos\left(x + \frac{\pi}{6}\right) - 2$$

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

$$A = 2$$

$$k = 1$$

$$P = 2\pi$$

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

$$D = -1$$

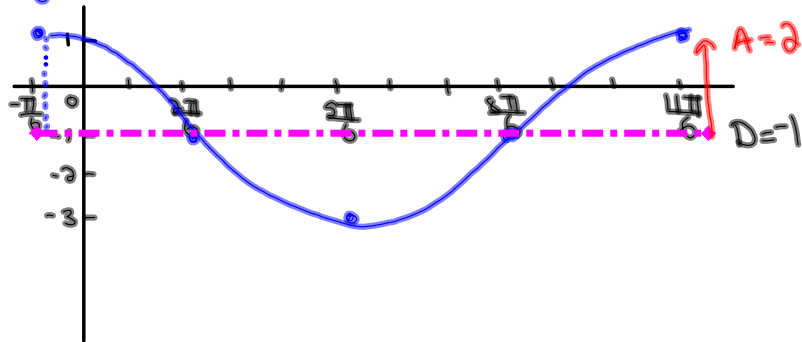
$$y = \cos x$$

X	y
0	1
$\frac{\pi}{2}$	0
π	-1
$\frac{3\pi}{2}$	0
2π	1



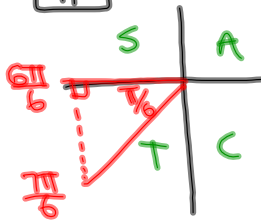
X	y
$-\frac{\pi}{6}$	1
$\frac{\pi}{6}$	-1
$\frac{5\pi}{6}$	-3
$\frac{7\pi}{6}$	-1
$\frac{11\pi}{6}$	1

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



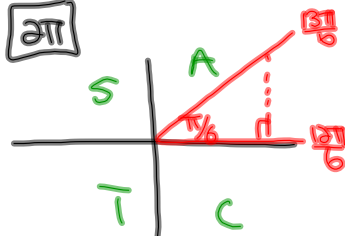
$$\frac{6\pi}{6}, \frac{7\pi}{6}, \frac{8\pi}{6}$$

$\boxed{\pi}$



$$\frac{12\pi}{6}, \frac{13\pi}{6}, \frac{14\pi}{6}$$

$\boxed{2\pi}$



$$\textcircled{2} \text{ c) } \frac{\sin \frac{\pi}{6} + \cos^2 \frac{7\pi}{6}}{\cos \frac{13\pi}{6}}$$

$$\frac{(1) + \left(-\frac{\sqrt{3}}{2}\right)^2}{\left(\frac{\sqrt{3}}{2}\right)}$$

$$\left(1 + \frac{3}{4}\right) \times \frac{2}{\sqrt{3}}$$

$$\frac{7}{4} \cdot \frac{2}{\sqrt{3}}$$

$$\frac{14}{4\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$\frac{14\sqrt{3}}{12}$$

$$\boxed{\frac{7\sqrt{3}}{6}}$$