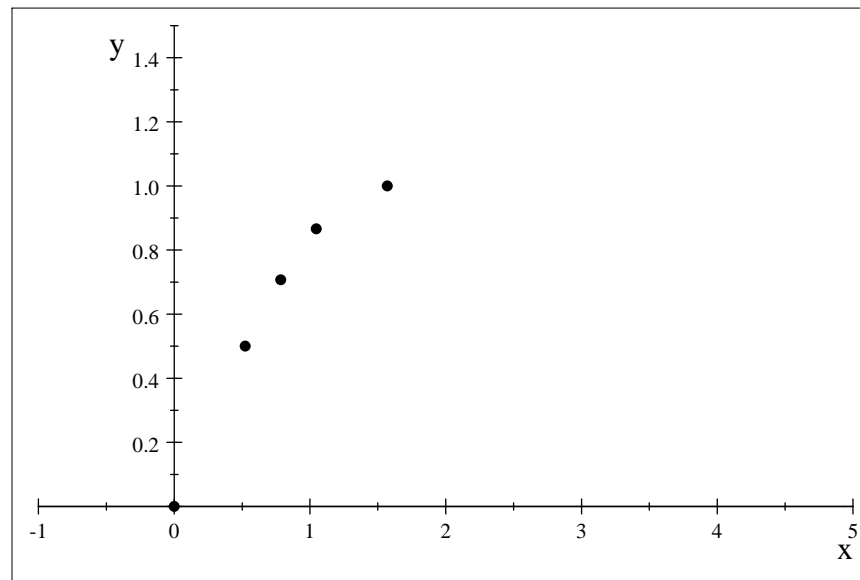
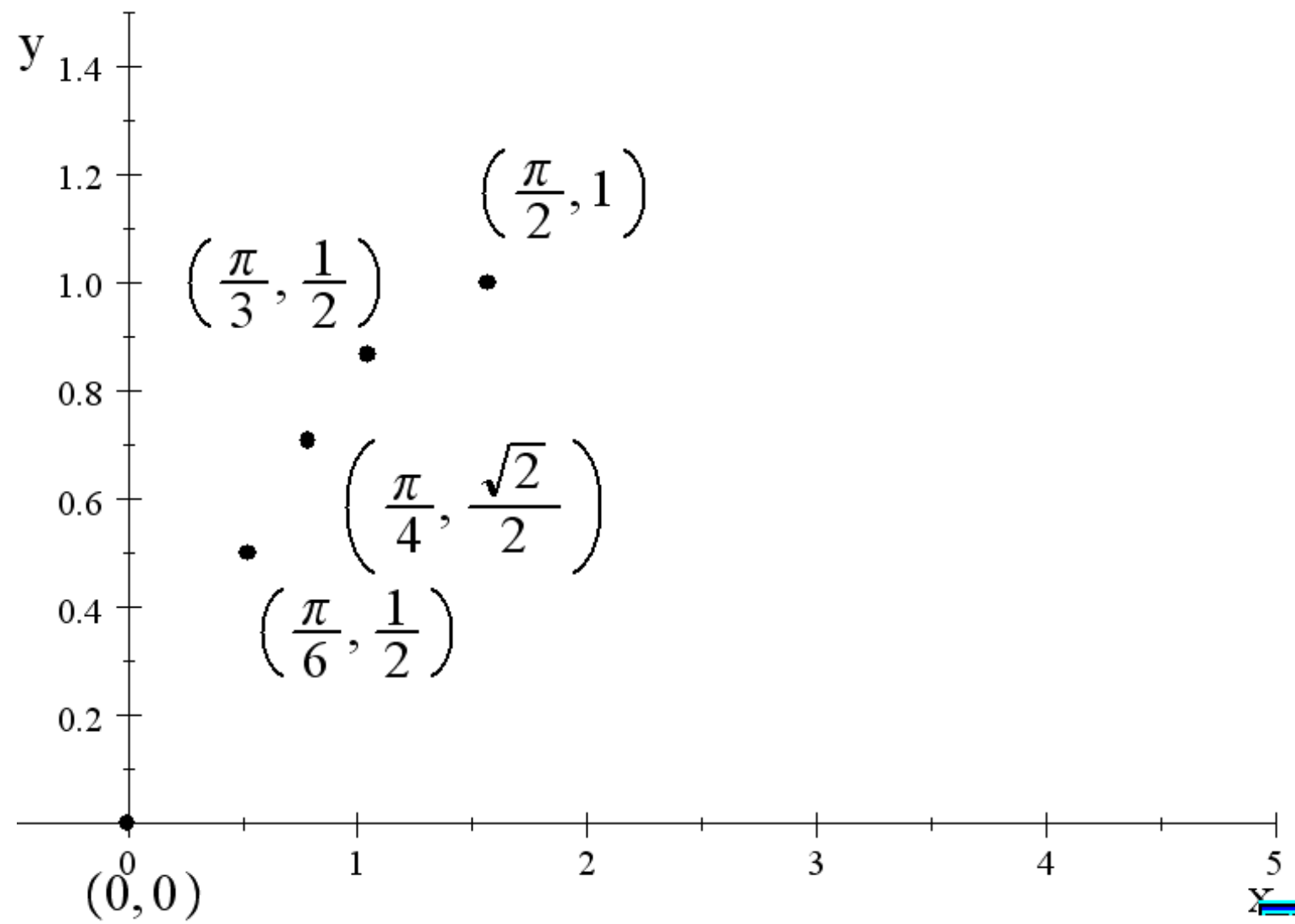


$\sin^2\theta + \cos^2\theta = 1$ $1 + \tan^2\theta = \sec^2\theta$ $\sec^2\theta - 1 = \tan^2\theta$

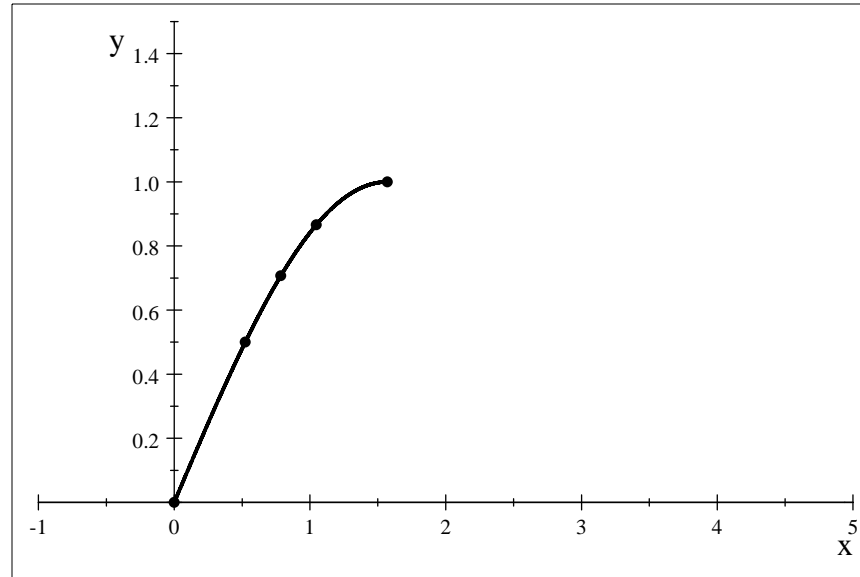
x	sin x	cos x
0	0	1
$\frac{\pi}{6}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$
$\frac{\pi}{4}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$
$\frac{\pi}{3}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
π	0	-1

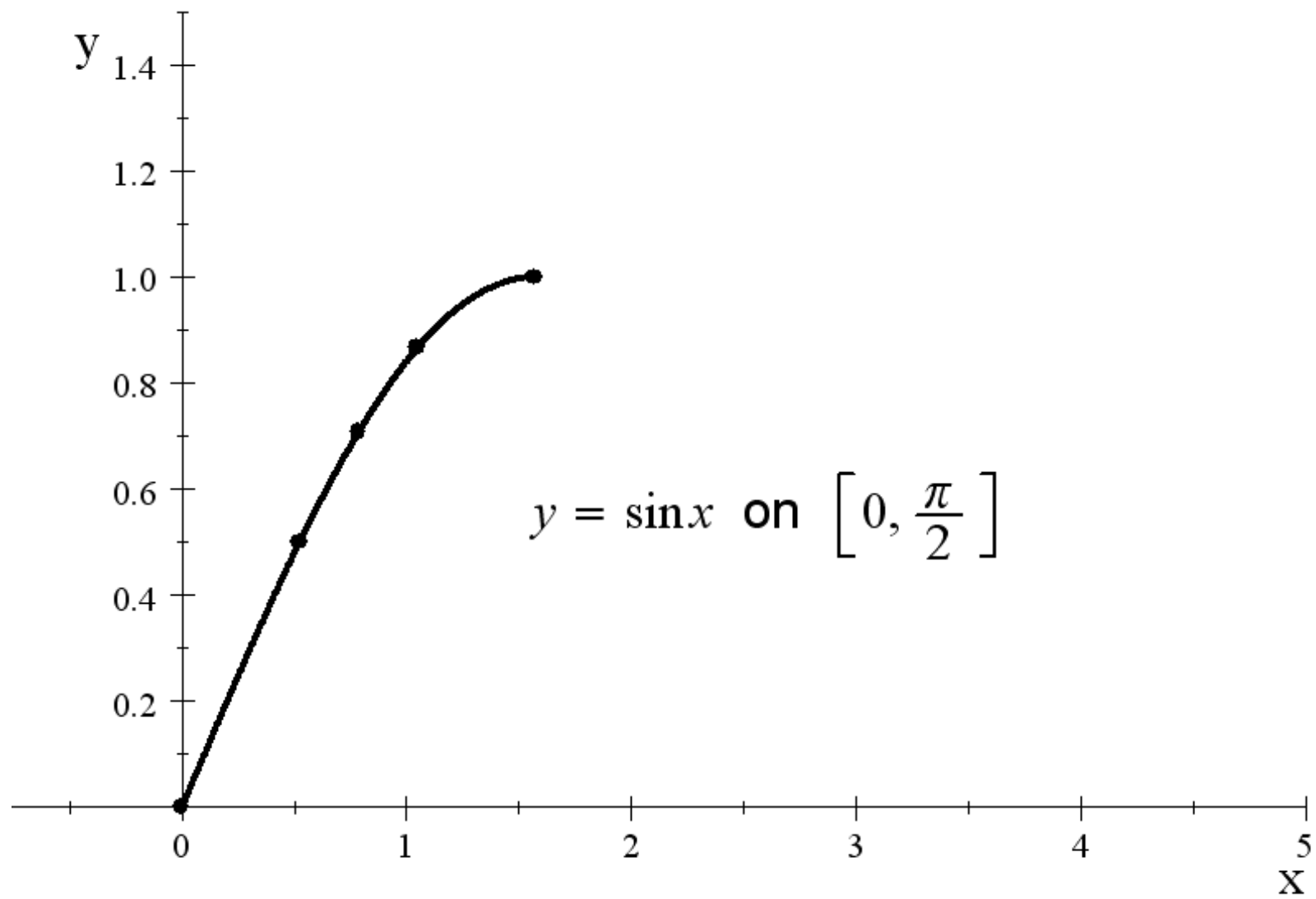


$$(0,0) \quad \left(\frac{\pi}{6}, \frac{1}{2}\right) \quad \left(\frac{\pi}{4}, \frac{\sqrt{2}}{2}\right) \quad \left(\frac{\pi}{3}, \frac{1}{2}\right) \quad \left(\frac{\pi}{2}, 1\right)$$



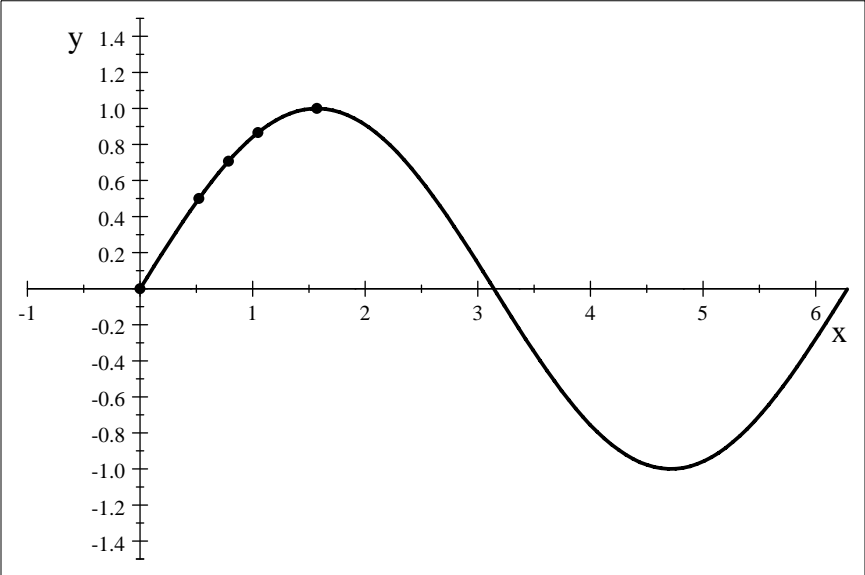
$$y = \sin x \text{ on } \left[0, \frac{\pi}{2}\right]$$

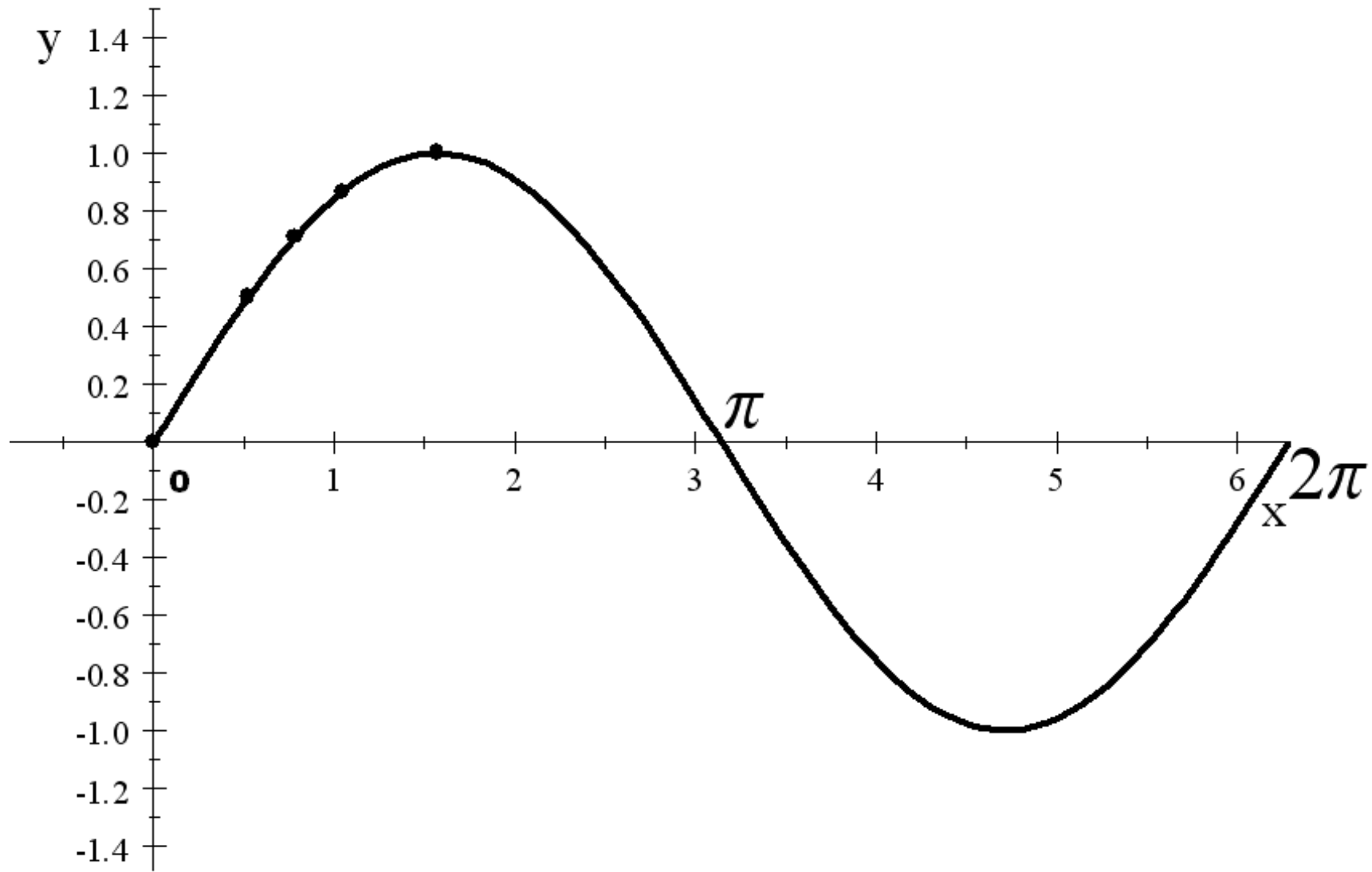




Using the other values, we can complete the graph on $[0, 2\pi]$

as follows



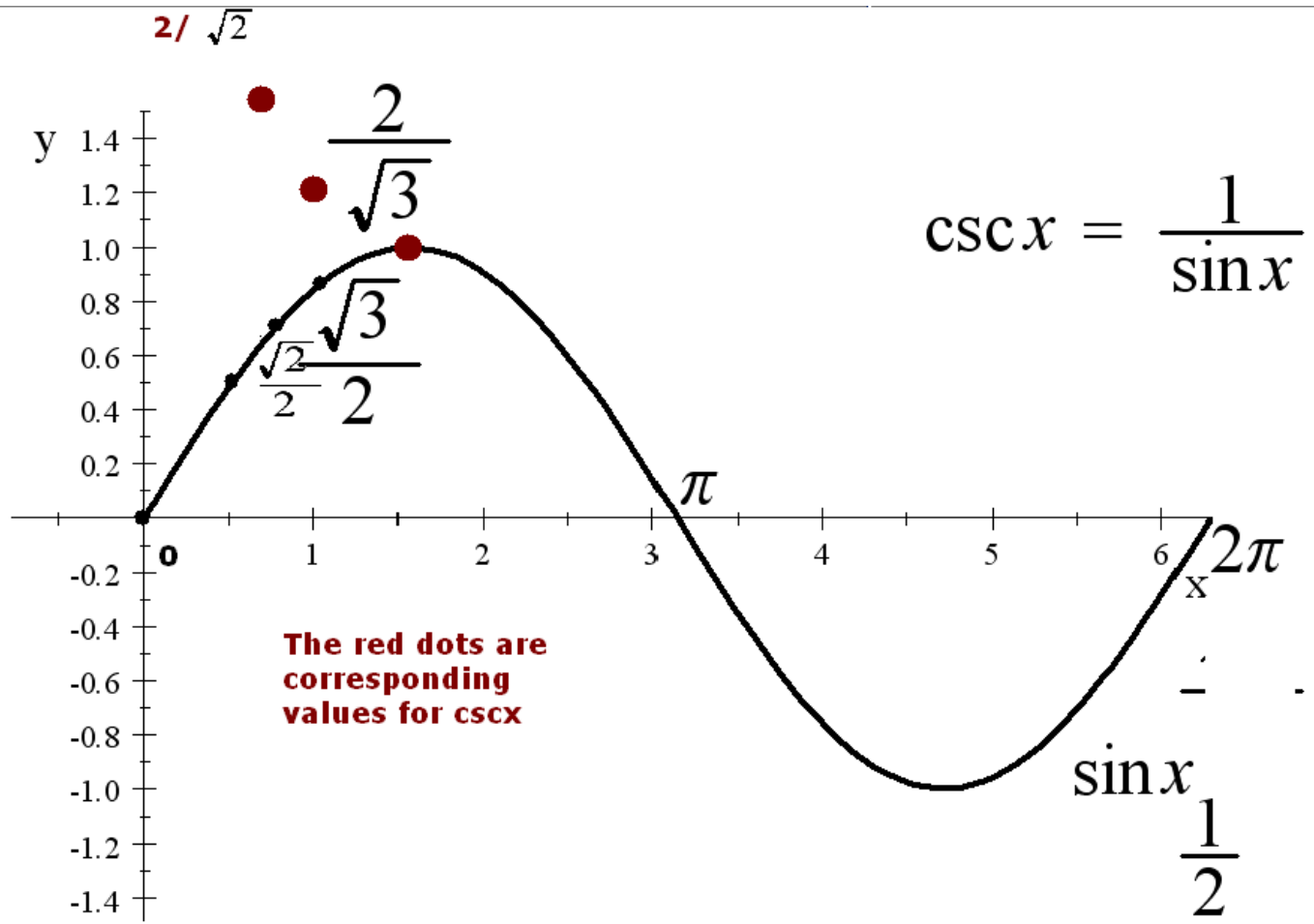


$$\csc x = \frac{1}{\sin x}$$

The function $f(x) = \sin x$ has a period of 2π

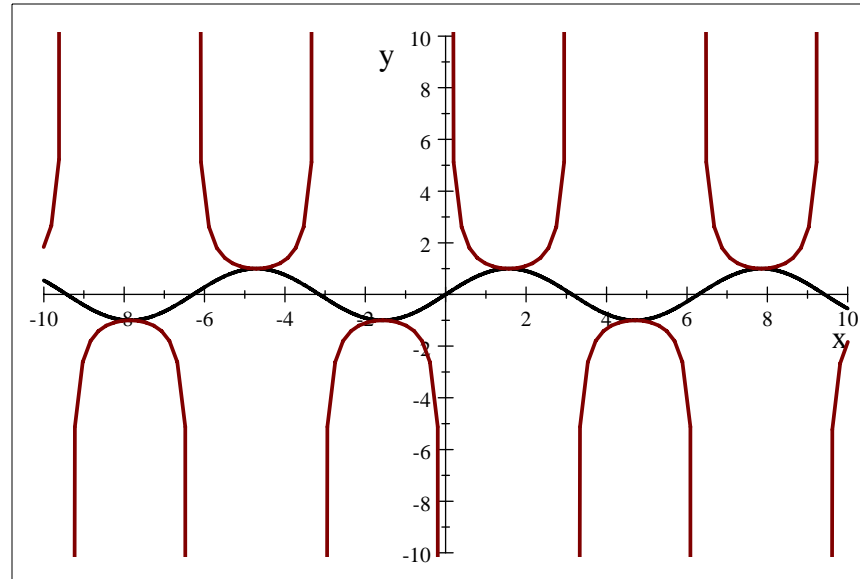
that is $f(x + 2\pi) = \sin(x + 2\pi) = \sin x = f(x)$

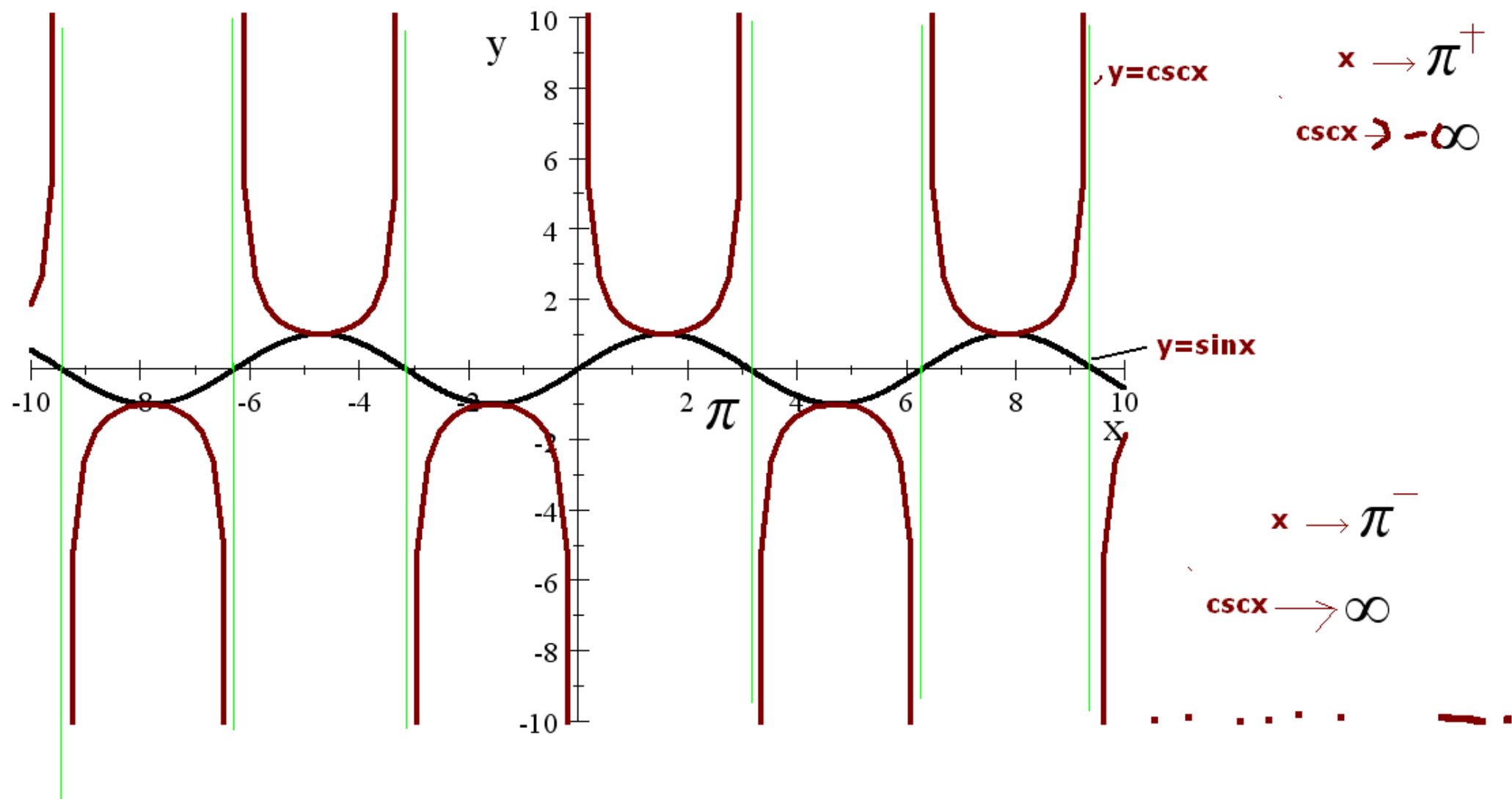
Similarly, $f(x) = \cos x$ has a period of 2π



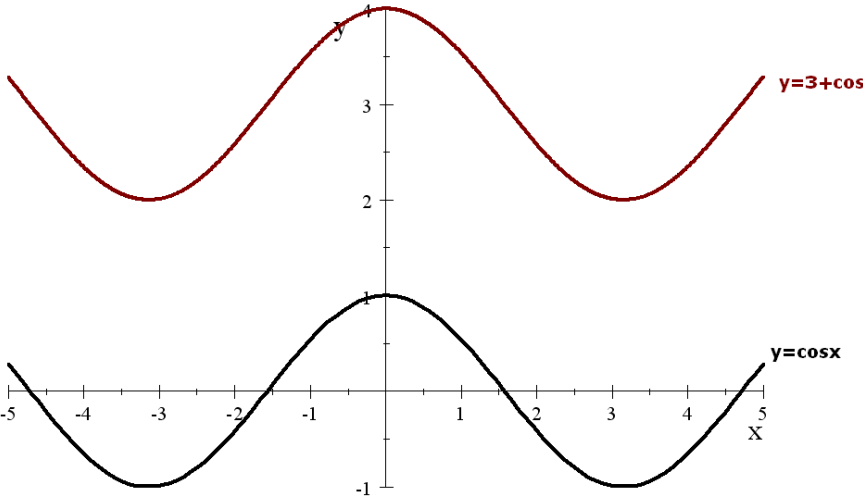
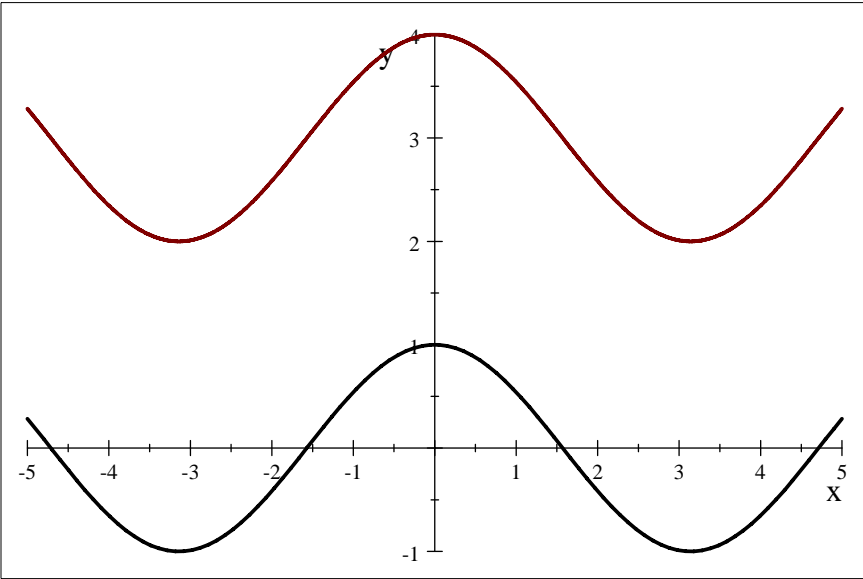
$\sin x$

$\sin x$
 $\frac{1}{2}$ 2





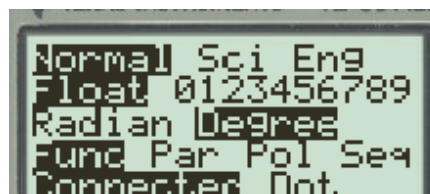
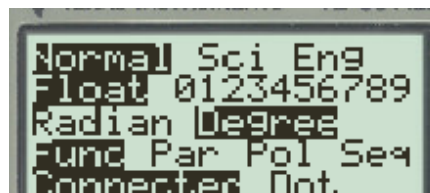
$\cos x$



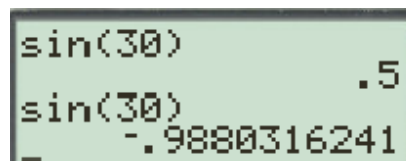
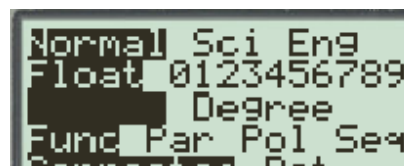
Calculator Corner

When working with the TRIG functions, make sure to check whether you are in the degree mode or in the radian mode

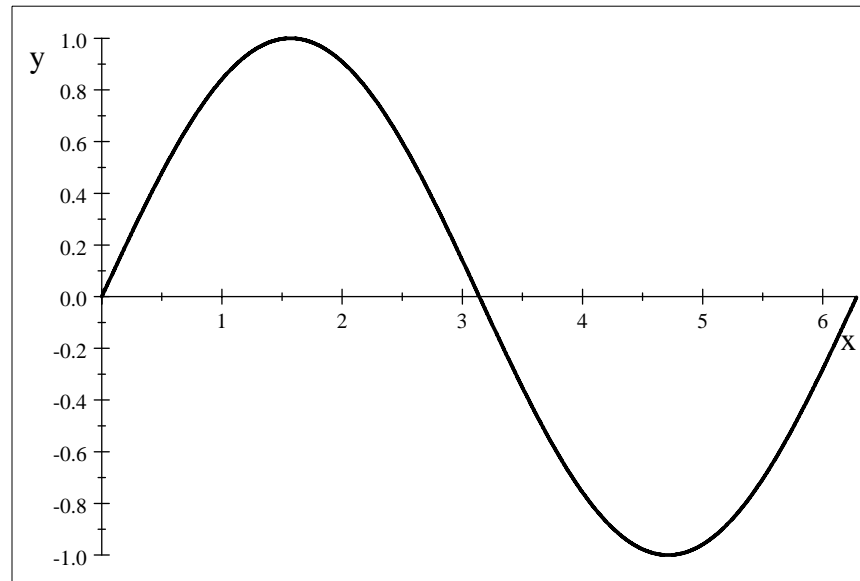
$$\sin 30^\circ = \frac{1}{2}$$

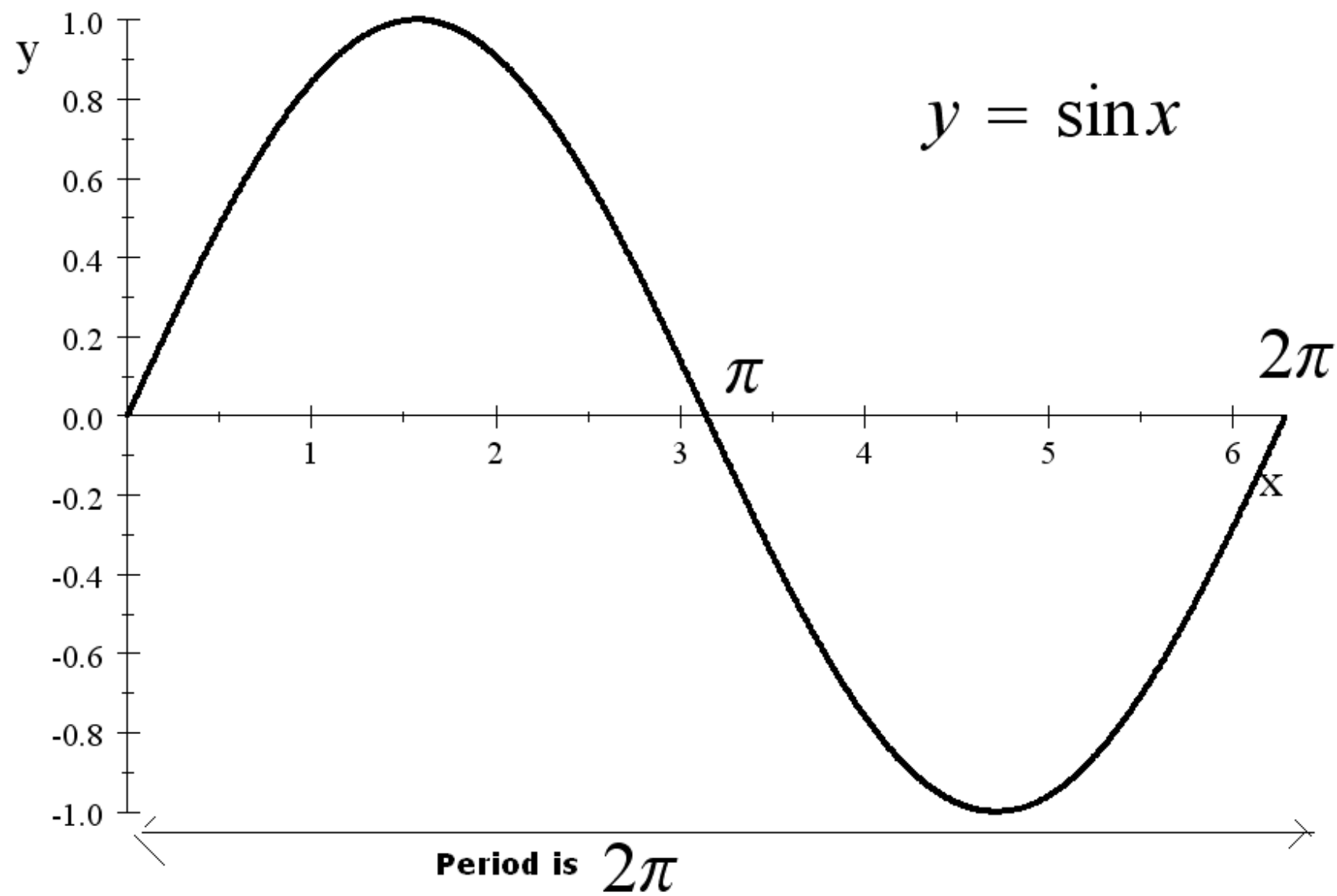


$$\sin 30 = -0.988$$

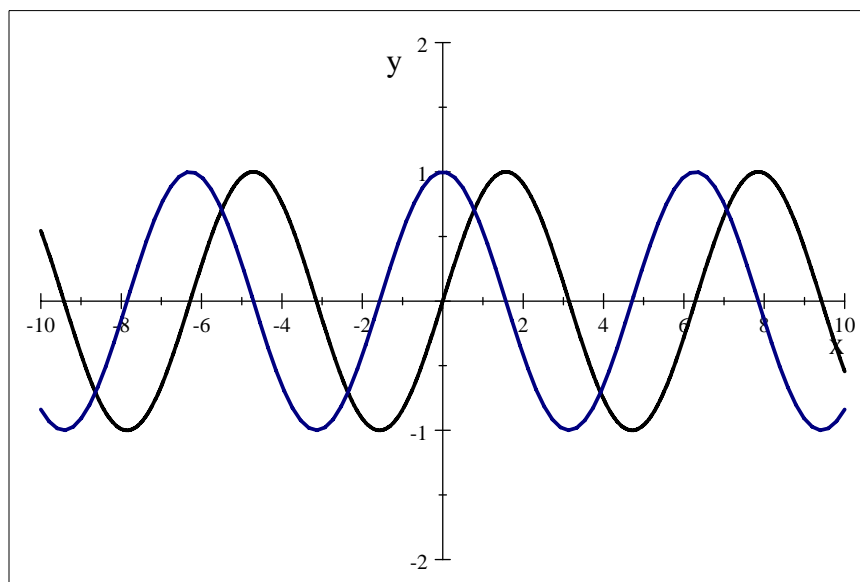


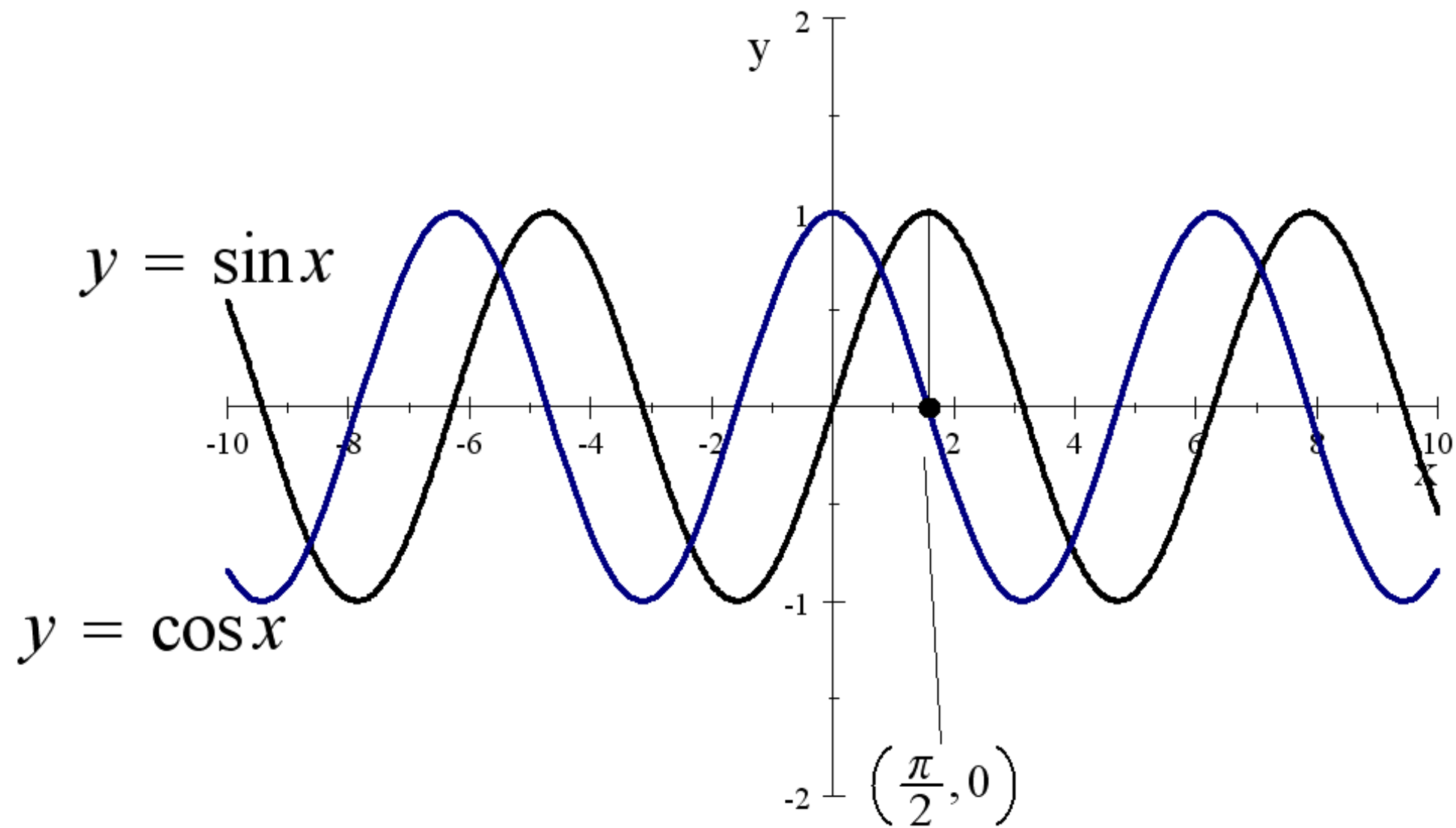
$$y = \cos x$$



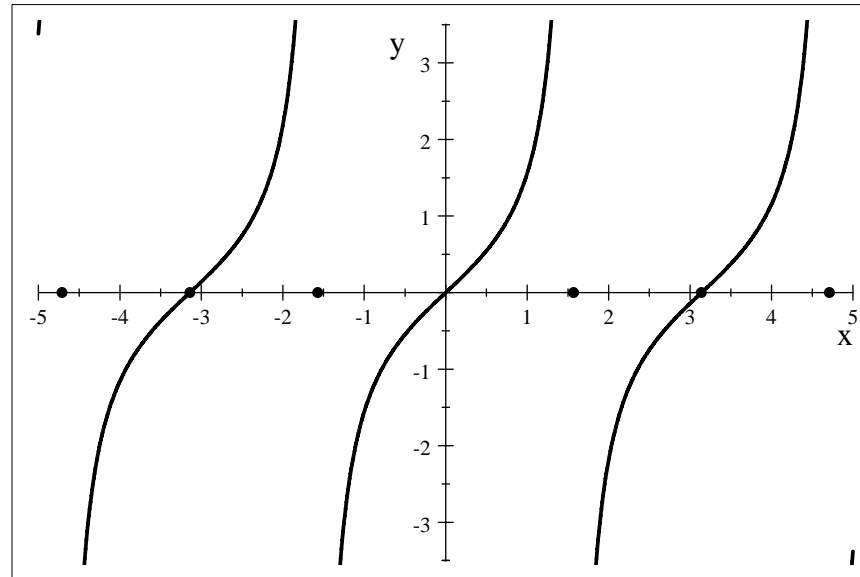


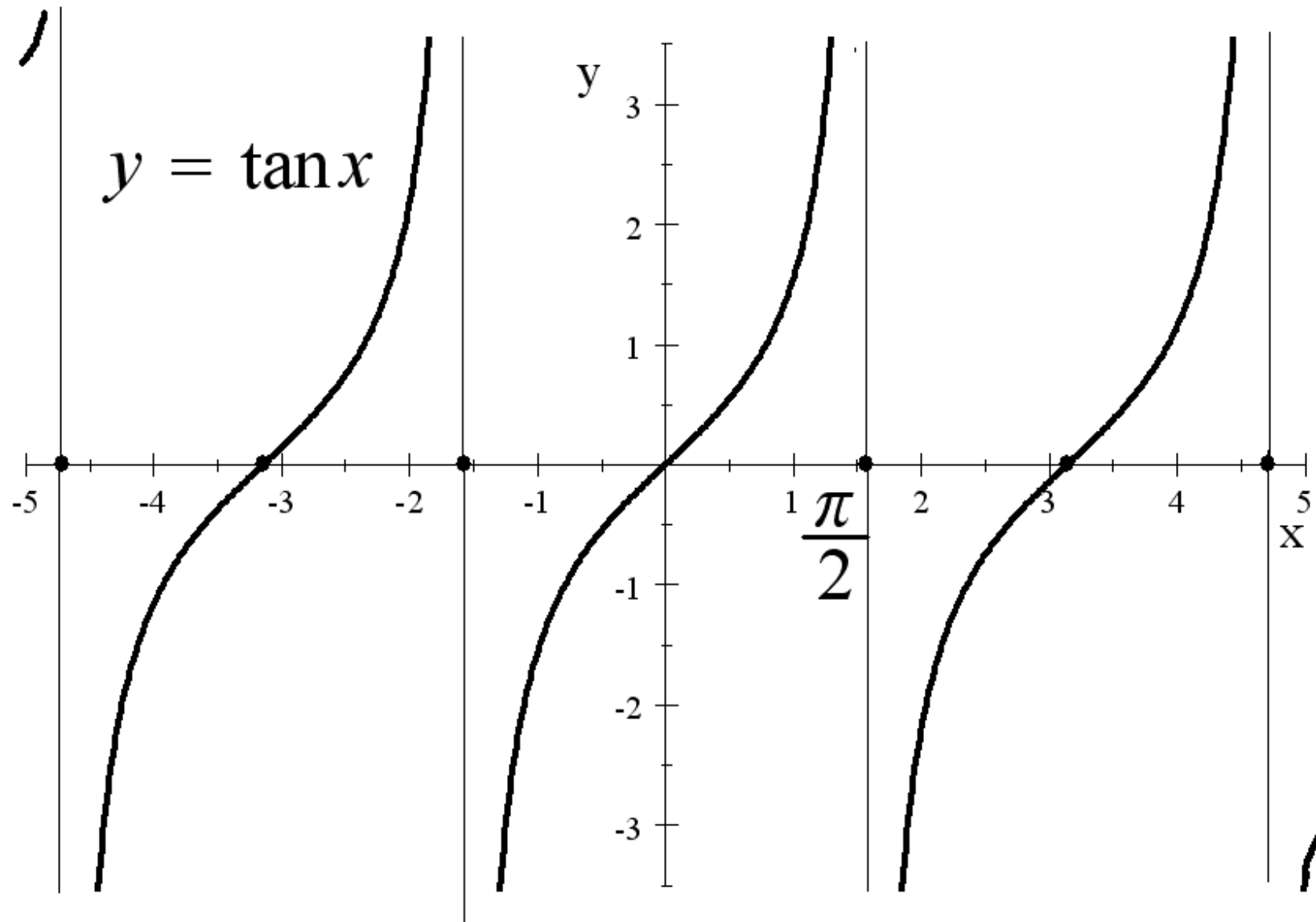
$\sin x$





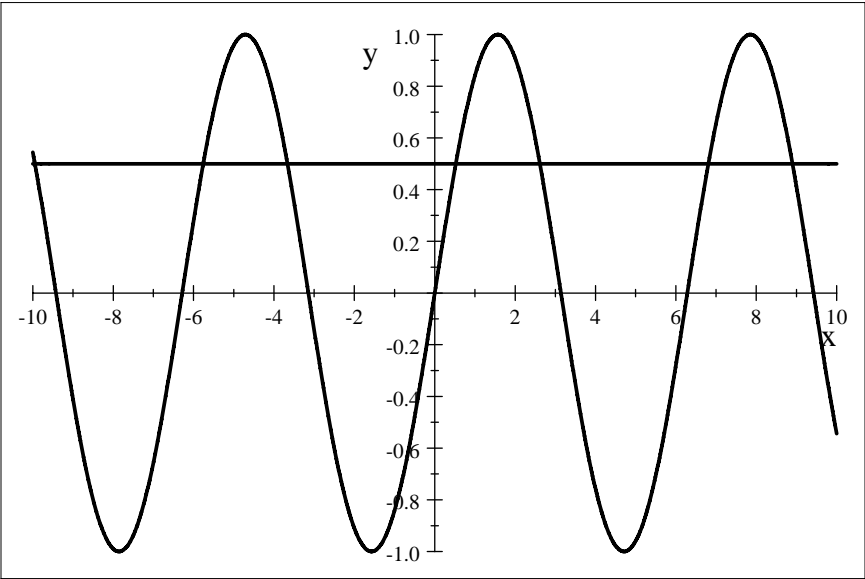
$$y = \tan x$$

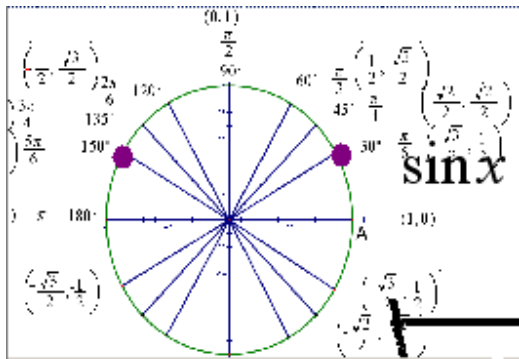




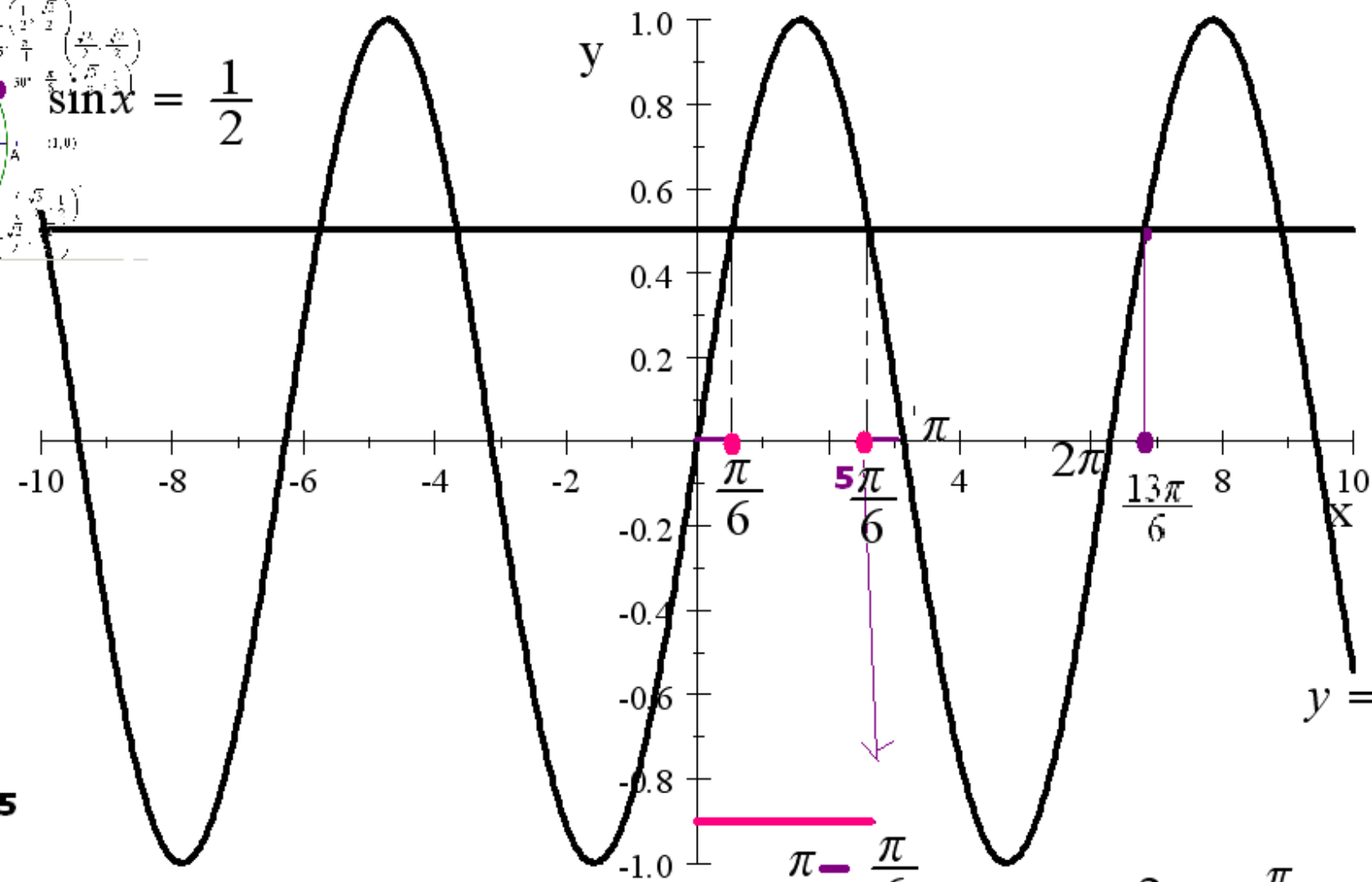
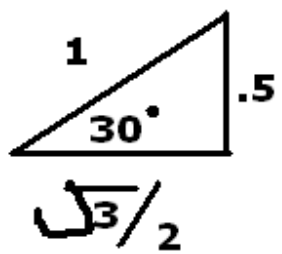
Solving Equations

1. $\sin x = \frac{1}{2}$





$$\sin x = \frac{1}{2}$$



$$y = \frac{1}{2}$$

$$y = \sin x$$

$$2\pi + \frac{\pi}{6} = \frac{13\pi}{6}$$

Solutions are

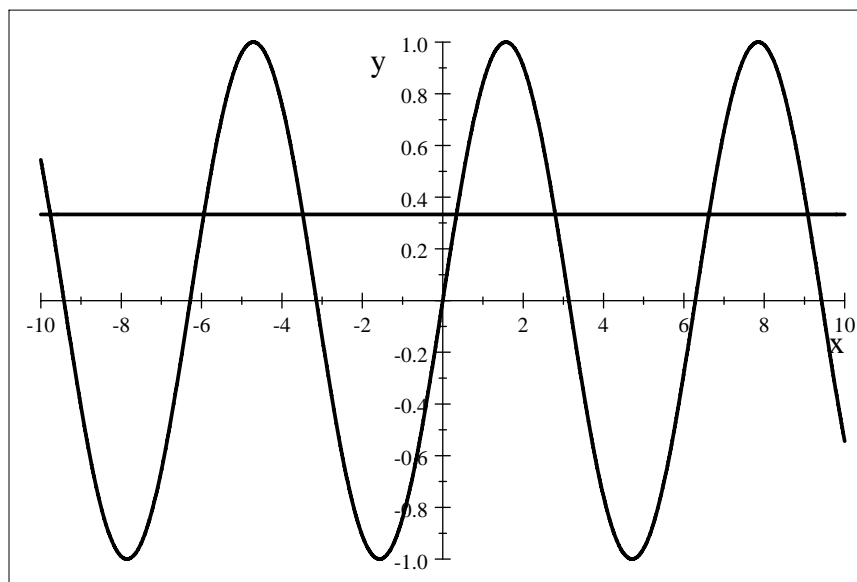
$$\frac{\pi}{6} + 2n\pi$$

$$\frac{5\pi}{6} + 2n\pi$$

Example 2:

Solve:

$\sin x = \frac{1}{3}$, you MAY round the answers to two digits after the decimal



$y = \sin x$


```
sin-1(1/3)  
.3398369095
```

