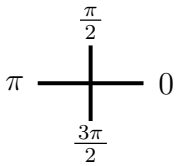
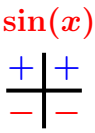
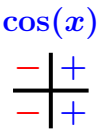
Trigonometric Equations

θ	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
$\sin(\theta)$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos(\theta)$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0







$$\sin^2(x) = 1 - \cos^2 x \qquad \sin(2x) = 2\sin(x)\cos(x)$$

$$\cos^2(x) = 1 - \sin^2 x \qquad \cos(2x) = \cos^2(x) - \sin^2(x)$$

1. Give **all** solutions to the following equations with $\mathbf{0 \le x < 2\pi}$.

   (a) $\sin(x) = -\frac{1}{2}$

   (b) $\cos(x) = -\frac{1}{2}$

   (c) $\sin(x) = -\cos(x)$

2. Give **all** solutions to the following equations with $\mathbf{0 \le x < 2\pi}$.

   (a) $2\sin^2 x = 2 + \cos x$

   (b) $2\cos^2 x + 5\sin x + 1 = 0$

   (c) $\sin(2x) = \sin x$

   (d) $\cos(2x) = \cos x$