Important Features of $\sin(x)$ & $\cos(x)$

$\sin(x)$	$\cos(x)$
Domain: $(-\infty, \infty)$	Domain: $(-\infty, \infty)$
$\sin(x) = 0$ at $x = 0$ and at $x = \pm k\pi$ $(k = 1, 2, \ldots)$	At $x = 0$: $\cos(x) = 1$ $\cos(x) = 0$ when $x = \pm k\frac{\pi}{2}$ $(k = 1, 2, 3, \ldots)$
Range: $-1 \le y \le 1$	Range: $-1 \le y \le 1$
max $= 1$ at $x = \frac{\pi}{2} \pm 2\pi k$ $(k = 0, 1, 2, \ldots)$	max $= 1$ at $x = \pm 2\pi k$ $(k = 0, 1, 2, \ldots)$
min $= -1$: at $x = \frac{3\pi}{2} \pm 2\pi k$ $(k = 0, 1, 2, \ldots)$	min $= -1$: at $x = \pm \pi k$ $(k = 1, 2, \ldots)$
odd $(f(x) = -f(-x))$	even: $f(x) = f(-x)$
symmetric about origin	symmetric about y-axis
Concave down near max	Concave down near max
concave up near min	Concave up near min
monotone between peaks, which means only increasing or decreasing between peaks	Monotone between peaks, which means only increasing or decreasing between peaks

- $\cos(x - \frac{\pi}{2}) = \sin(x)$
- $\sin(x + \frac{\pi}{2}) = \cos(x)$
- $\sin(x - \frac{\pi}{2}) = -\cos(x)$
- $\cos(x + \frac{\pi}{2}) = -\sin(x)$