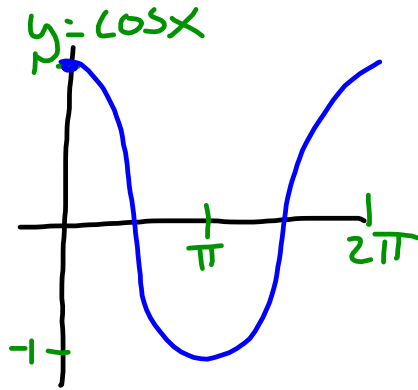
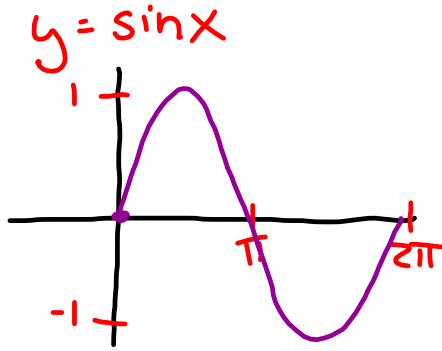


Section 7.6 - cont.: Graphs of sin, cos



$$y = \pm a \sin(b(x-c)) + d$$

\ominus Flip over x
 amplitude $\text{amp} = |a|$
 or \cos
 Period = $\frac{2\pi}{b}$
 Phase Shift
 \oplus left
 \ominus right
 Vertical shift
 \oplus up
 \ominus down

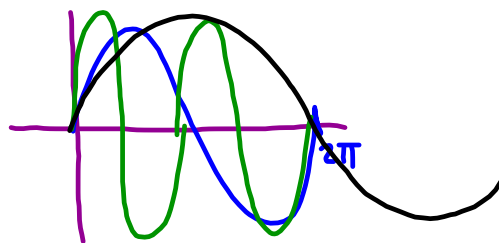
Sometimes: $y = d \pm a \sin b(x-c)$

Period = length of 1 cycle = 1 wavelength

$$y = \sin x \quad b=1 \quad \text{per} = \frac{2\pi}{1} = 2\pi$$

$$y = \sin 2x \quad b=2 \quad \text{per} = \frac{2\pi}{2} = \pi$$

$$y = \sin \frac{x}{2} \quad b=\frac{1}{2} \quad \text{per} = \frac{2\pi}{\frac{1}{2}} = 4\pi$$



$$y = \sin 3\pi x \quad b=3\pi$$

$$\text{per} = \frac{2\pi}{3\pi} = \frac{2}{3}$$