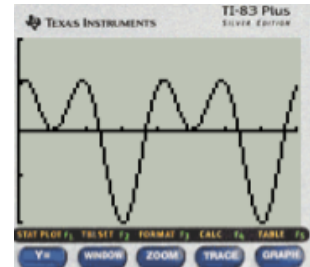
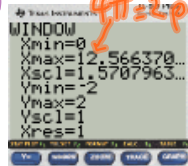


Section 7.7b: Combinations of Trig Graphs

• Combining 2+ Trig Functions

$$y = \sin(x) + \cos(2x)$$

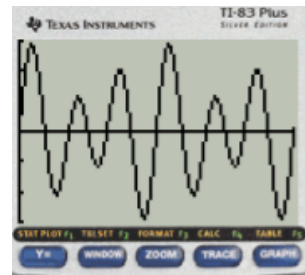
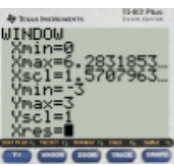
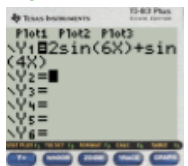
Per = 2π π



Combined (LCM) = 2π
Period

$$y = 2\sin(6x) + \sin(4x)$$

per = $\frac{2\pi}{6} = \frac{\pi}{3}$ $\frac{2\pi}{4} = \frac{\pi}{2}$

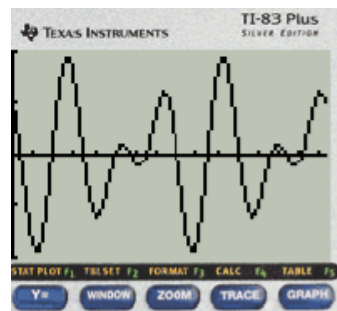
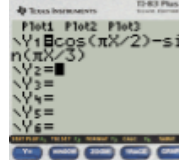
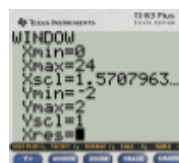


Combined = π

$$y = \cos\left(\frac{\pi x}{2}\right) - \sin\left(\frac{\pi x}{3}\right)$$

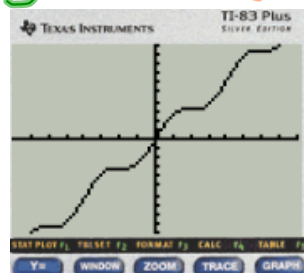
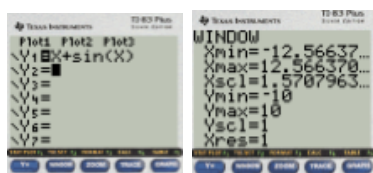
$\frac{2\pi}{\pi/2} = 4$ $\frac{2\pi}{\pi/3} = 6$

Combined = 12



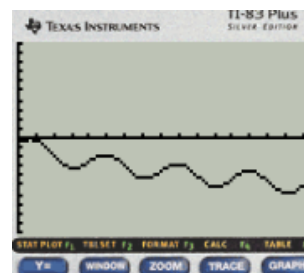
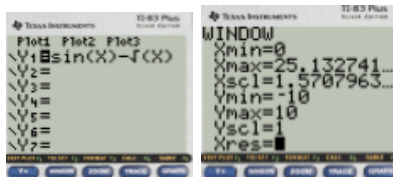
Combinations of Algebraic & Trig Functions

$$y = \underline{x} + \underline{\cos(x)}$$



Do create a pattern, but are not periodic

$$y = \sin(x) - \sqrt{x}$$



Damped Trig Functions

The product of 2 functions contains properties of both functions

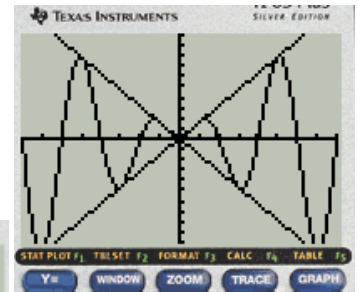
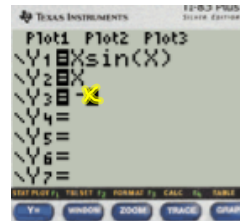
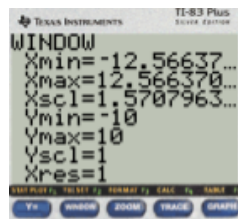
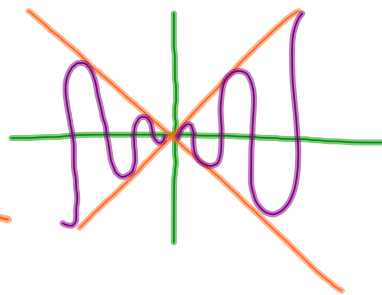
$$y = x \sin(x)$$

↑
damping factor


$$y = |x|$$

$$y = x$$

$$y = -x$$



$$y = \frac{1}{x} \sin(x)$$

↑
 $y = \frac{1}{x}$ 
 $y = -\frac{1}{x}$ 