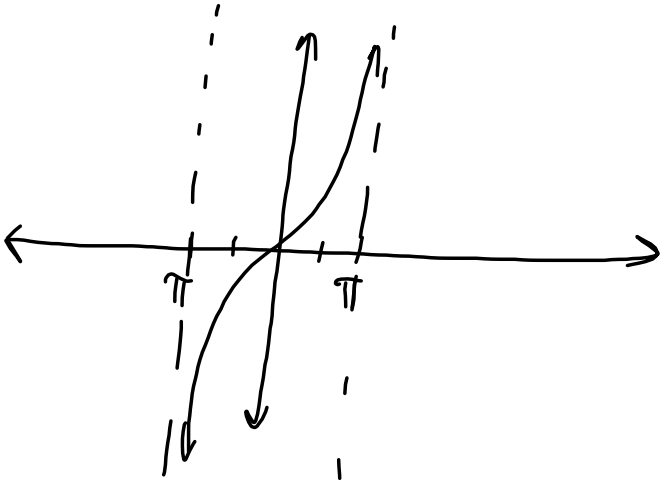
29) $y = \tan\left(\frac{\pi x}{4}\right)$ $\quad y = \tan\left(\frac{\pi}{4}x\right)$ $\quad P: \frac{\pi}{\frac{\pi}{4}} = 4$

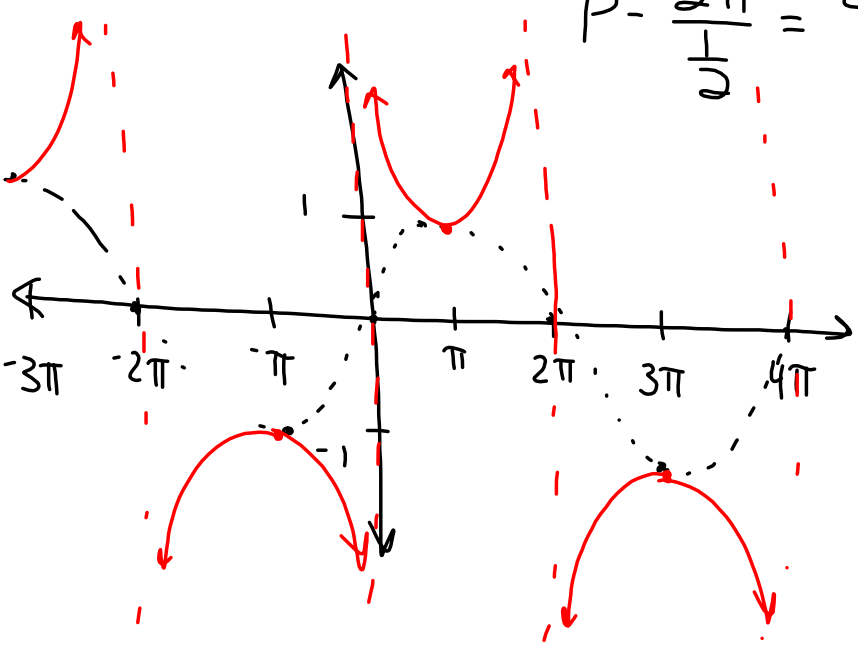
39) $y = \tan \frac{x}{2}$ $\quad y = \tan\left(\frac{1}{2}x\right)$ $\quad$ period: $\frac{\pi}{b}$

$\frac{\pi}{\frac{1}{2}} = \pi \cdot \frac{2}{1} = 2\pi$



25) $y = \csc\left(\frac{x}{2}\right)$ $\quad y = \csc\left(\frac{1}{2}x\right)$

$P = \frac{2\pi}{\frac{1}{2}} = 4\pi$



Section 4.6 B Damping factors of Trig graphs

You can graph a product of two functions using properties of the individual functions to create a "damped function".

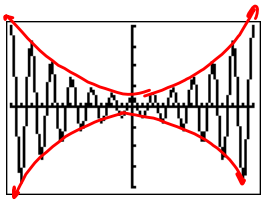
Name the damping factor

$(x+5)^2$

(x^2+5)

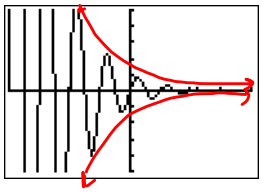
$y = (x^2 + 5)\cos 6x$

damping factor x^2+5



WINDOW
Xmin=-6.283185...
Xmax=6.2831853...
Xscl=.26179938...
Ymin=-40
Ymax=40
Yscl=10
Xres=1

$f(x) = 2^{-x}\sin 4x$



WINDOW
Xmin=-6.283185...
Xmax=6.2831853...
Xscl=1.5707963...
Ymin=-5
Ymax=5
Yscl=1
Xres=1

$y_1 = 2^{-x}\sin 4x$

$y_2 = 2^{-x}$

$y_3 = -2^{-x}$

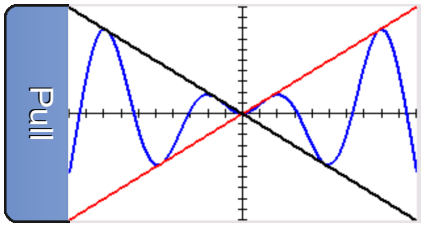
damping factor: 2^{-x}

Graph. Name the damping factor.

$f(x) = x\sin x$

damping: x

$x \to 0 \quad y \to 0$



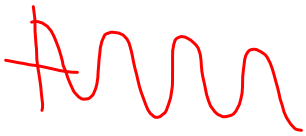
$f(x) = e^{-x}\sin 3x$

damping: e^{-x}

$x \to \infty \quad y \to 0$

$f(x) = 3\cos 2x$

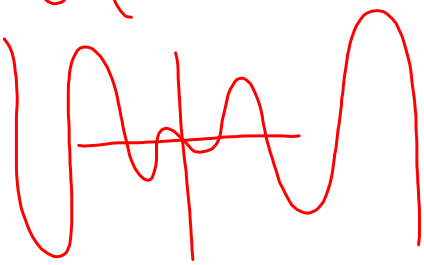
None:



$y = -2x\cos x$

damping: $-2x$

$x \to 0 \quad y \to 0$

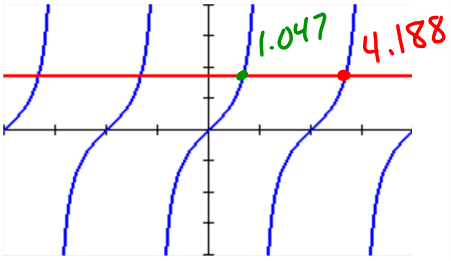


Use a graph to solve the equation on the interval [-2π, 2π]

$\tan x = \sqrt{3}$

$y_1 = \tan x$

$y_2 = \sqrt{3}$



WINDOW
Xmin=-6.283185307
Xmax=6.283185307
Xscl=1.5707963267949
Ymin=-4
Ymax=4
Yscl=1
Xres=1
ΔX=0.047599888689394
TraceStep=0.095199777378…

$\sec x = 2$ $\quad$ $X = -1.05$

$y_1 = \frac{1}{\cos x}$

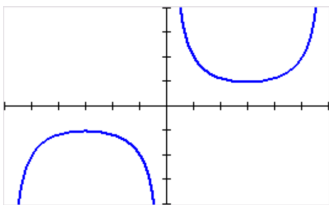
$y_2 = 2$

Determine if the function is even, odd, or neither.

$f(-x) = f(x)$ even

$f(-x) = -f(x)$ odd

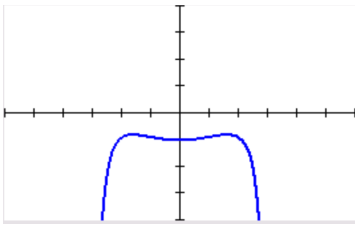
$g(x) = \csc x$



odd

Symmetry origin

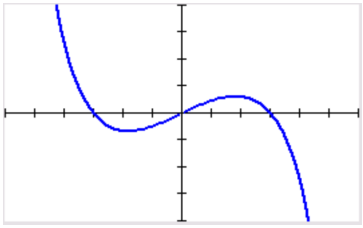
$g(x) = x^2 - \sec x$



even

Symmetry y-axis

$g(x) = x^2 \cot x$

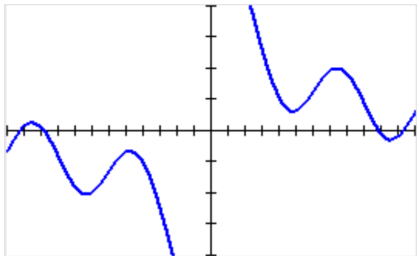


odd

Graph the function and describe the behavior of the function as x approaches zero.

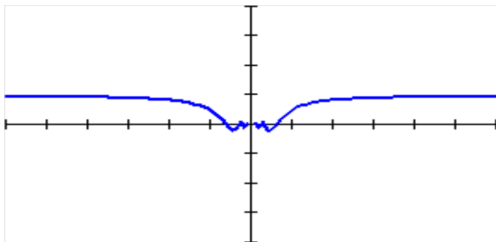
$y = 4/x + \sin 2x, \quad x > 0$

$x \to 0 \quad y \to \infty$



$h(x) = x\sin(1/x)$

$x \to 0 \quad y \to 0$



Section 4.6 B Pgs. 315-317: #49-63 odd, 65-68, 73-76, 77-81 odd, 86, 87, 90