PODs

$y = \frac{-3}{x}$

$= -3x^{-1}$

$\frac{dy}{dx} = 3x^{-2}$

$= \frac{3}{x^2}$

$y = \frac{4}{\sqrt{x}}$

$= \frac{4}{x^{1/2}}$

$= 4x^{-1/2}$

} Rewriting

$\frac{dy}{dx} = -2x^{-3/2}$

$= \frac{-2}{x^{3/2}}$

$= \frac{-2}{\sqrt{x^3}}$

Hw problem

$f(x) = x^3$ $\quad 3x - y + 1 = 0$

Equation tangent to f & parallel to line

$3x - y + 1 = 0$

$3x + 1 = y$

$y = 3x + 1$

$m = 3$

$f'(x) = 3x^2$

$3x^2 = 3$

$x^2 = 1$

$x = \pm 1$

Points from original

$f(1) = 1^3 = 1$

$(1, 1)$; $m = 3$

$y - y_1 = m(x - x_1)$

$y - 1 = 3(x - 1)$

$y - 1 = 3x - 3$

$y = 3x - 2$

$f(-1) = (-1)^3 = -1$

$(-1, -1)$ $m = 3$

$y + 1 = 3(x + 1$

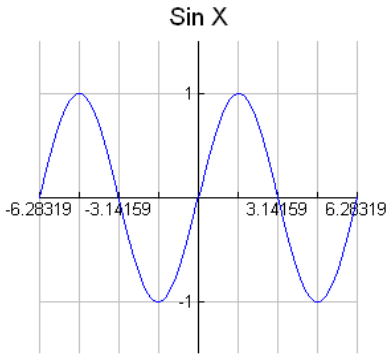
$y + 1 = 3x + 3$

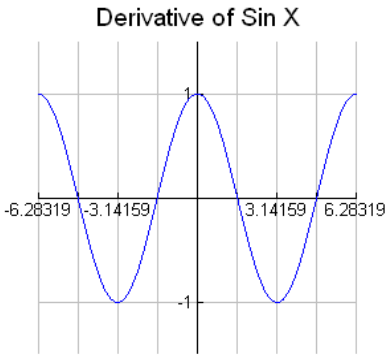
$y = 3x + 2$

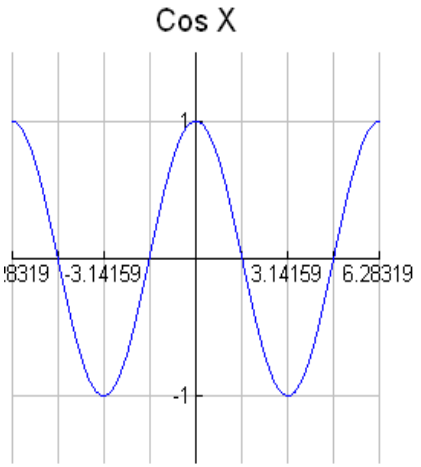
Sum + Difference Rule

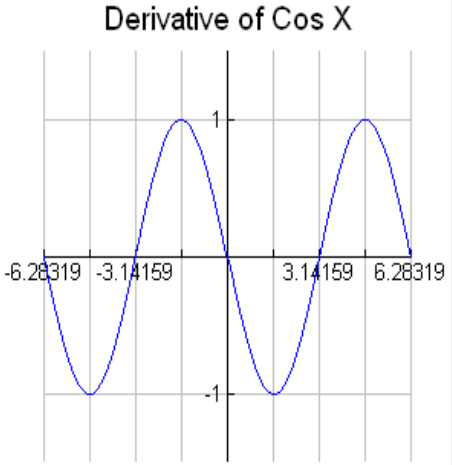
$$\frac{d}{dx}\left(f(x)+g(x)\right) = f'(x)+g'(x)$$

$$\frac{d}{dx}\sin x = \cos x \qquad \frac{d}{dx}\cos x = -\sin x$$









$s(t)$ = position function

$v(t) = s'(t)$ = instantaneous velocity