2.

$$y = \left(\frac{-x^2+1}{(x^2+1)^2}\right)(x-2) + \frac{2}{5}$$

$x = 2$

$$\frac{(x^2+1)(1) - (x)(2x)}{(x^2+1)^2}$$

$$\frac{(x-1)(1) - (x+1)(1)}{(x-1)^2}$$

$$\frac{-2}{(x-1)^2}$$

$\sin^2 x = (\sin x)^2$

$2(\sin x)^1 \cos x$

$(\cos x)^2$

$2(\cos x)(-\sin x)$

$(\tan x)^2$

$2(\tan x)(\sec^2 x)$

$(\sec x)^2$

$2\sec x(\sec x \tan x)$

$(3x+4)^4$

$4(3x+4)^3(3)$

$f(x) = x\sqrt{2x+1}$

$x(2x+1)^{\frac{1}{2}}$

$x\left(\frac{1}{2}(2x+1)^{-\frac{1}{2}} \cdot 2\right) + (2x+1)^{\frac{1}{2}}$

$\frac{x}{(2x+1)^{\frac{1}{2}}} + \frac{(2x+1)^{\frac{1}{2}}}{1} \cdot \frac{(2x+1)^{\frac{1}{2}}}{(2x+1)^{\frac{1}{2}}}$

$\frac{x+2x+1}{(2x+1)^{\frac{1}{2}}} = \frac{3x+1}{(2x+1)^{\frac{1}{2}}}$

3.

$2\underset{1}{\sin x}\underset{2}{\cos x} = \sin 2x$

$(\cos 2x) \cdot 2$

$2\left(\sin x(-\sin x) + \cos x \cos x\right)$

$2\left(-\sin^2 x + \cos^2 x\right)$

$2\left(\cos^2 x - \sin^2 x\right)$

$2\cos 2x$

$y = \frac{x}{(x^2+1)}$ $x = 2$

$$\frac{(x^2+1)(1) - (x)(2x)}{(x^2+1)^2}$$

$$\frac{x^2+1-2x^2}{(x^2+1)^2} = \frac{-x^2+1}{(x^2+1)^2}$$

$-(2)^2$

$$y = \left(\frac{-x^2+1}{(x^2+1)^2}\right)(x-2) + \frac{2}{5}$$

$$y = \frac{-3}{25}(x-2) + \frac{2}{5}$$

$$\frac{(x-1)(1) - (x+1)(1)}{(x-1)^2}$$

$$\frac{\cancel{x}-1-\cancel{x}-1}{(x-1)^2} \qquad \frac{-2}{(x-1)^2}$$

$$s(5) - s(0)$$

$$v = 6t^2 - 8t$$

$$a = 12t - 8$$

46. $y = 4 + \cot x - 2\csc x \qquad x = \frac{\pi}{2}$

$\left(\frac{\pi}{2}, 2\right)$

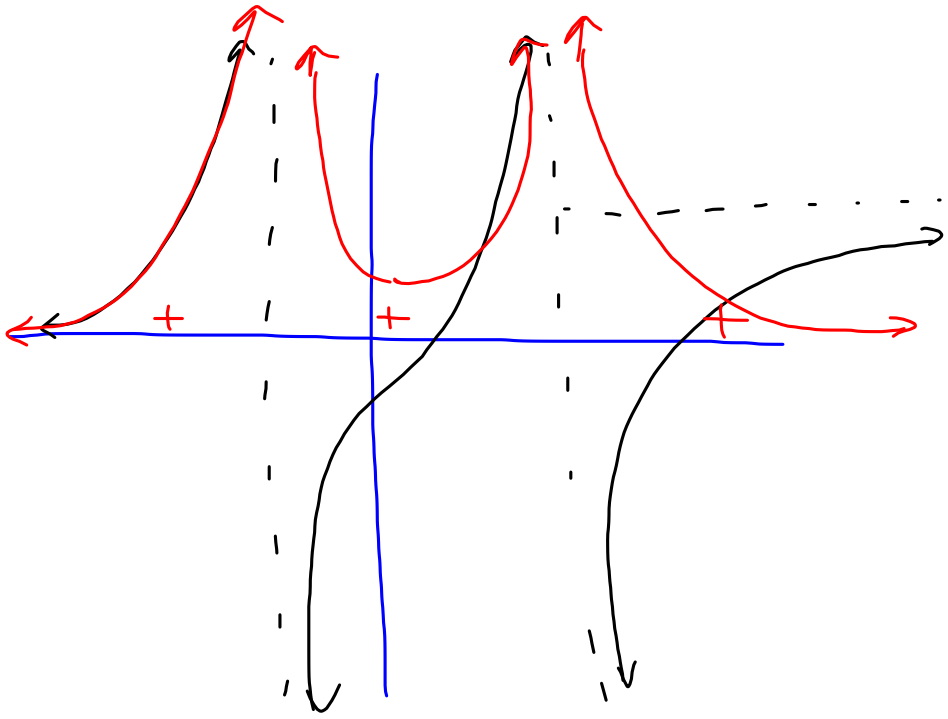
$$y' = -\csc^2 x - 2(-\csc x \cot x)$$

$$= -\csc^2\left(\frac{\pi}{2}\right) + 2\csc\frac{\pi}{2}\cot\frac{\pi}{2}$$

$$m = -1$$

60.

60.



30.

$$r = \left(\frac{1+\sin\theta}{1-\cos\theta}\right)^2$$

$\sin x$

$\sin(3x+4)$

$3\cos(3x+4)$

$-(-\sin\theta)$

$$r' = 2\left(\frac{1+\sin\theta}{1-\cos\theta}\right)^1 \left(\frac{(1-\cos\theta)(\cos\theta)-(1+\sin\theta)(\sin\theta)}{(1-\cos\theta)^2}\right)$$