9 | F

$$\frac{\sqrt{9+6x^2}}{11+9x} = \frac{\sqrt{x^2(6+9x^{-2})}}{x(9+11x^{-1})}$$

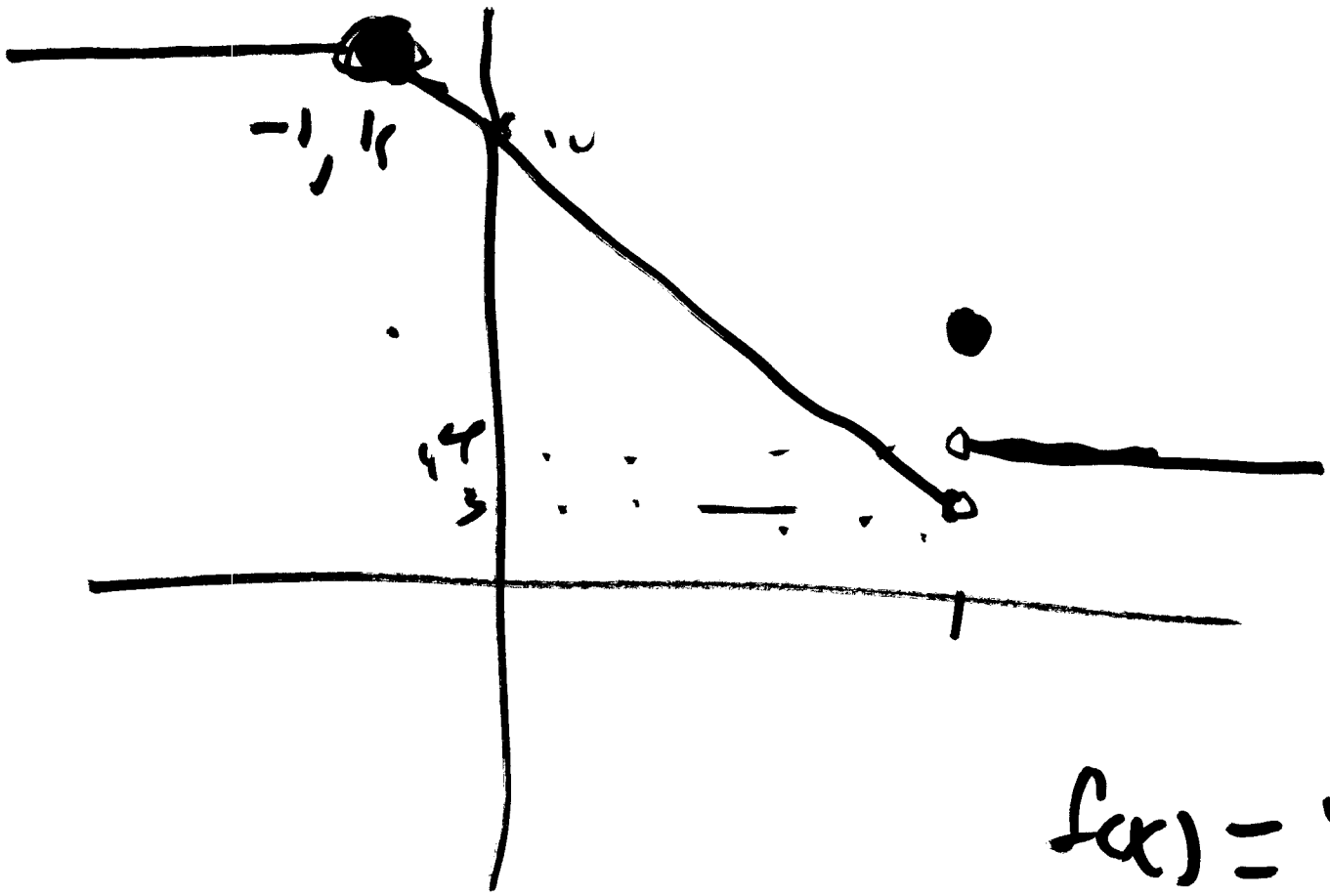
$$= \frac{|x|\sqrt{6+9x^{-2}}}{x(9+11x^{-1})} \qquad \left(\frac{|x|}{x} = \begin{cases} 1 & x>0 \\ 0 \text{ or } -1 & x \end{cases}\right)$$

$$= \frac{x\sqrt{6+9x^{-2}}}{x(9+11x^{-1})} \quad \text{if } x>0$$

$$\frac{-x\sqrt{6+9x^{-2}}}{x(9+11x^{-1})} \quad \text{if } x<0$$

$$+\left(\frac{\sqrt{6+9x^{-2}}}{9+11x^{-1}}\right) \quad \therefore \begin{array}{ll} x\to+\infty & \frac{\sqrt{6}}{9} \\ x\to-\infty & -\frac{\sqrt{6}}{9} \end{array}$$

$$-\left(\quad\right)$$



$f(x) = 11$
$x < -1$

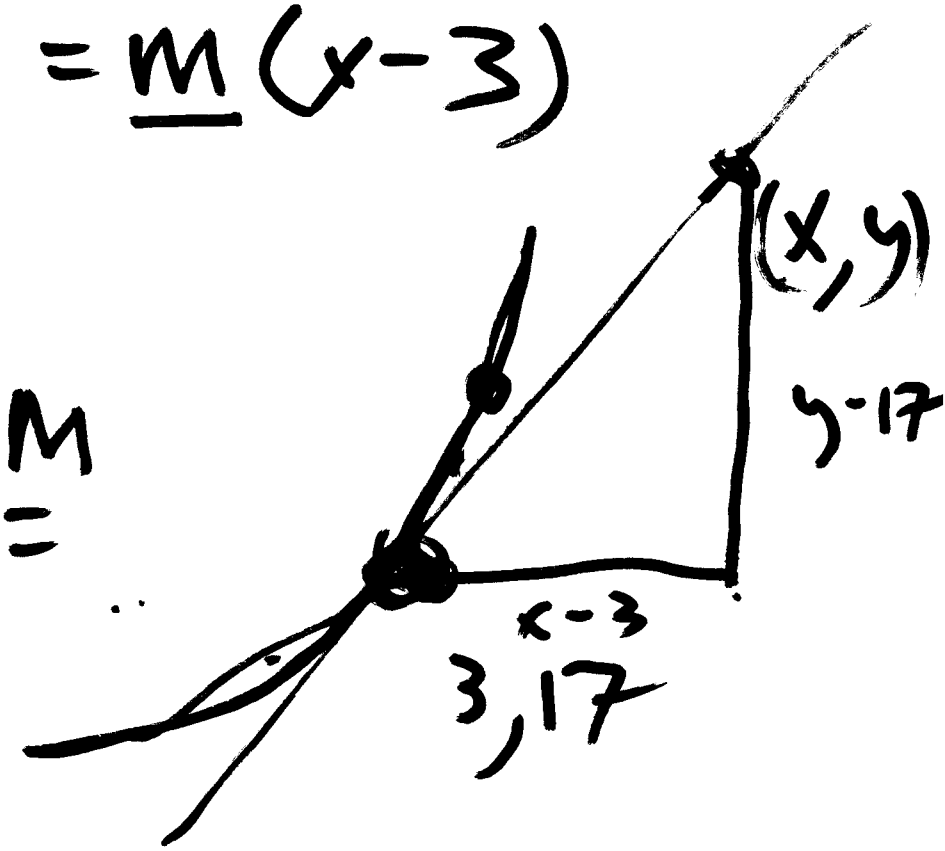
$f(x) = -x + 10$
$-1 \leq x < 7$

$f(x) = 4$
$x > 7$

$f(7) = 7$

Equation of Line at (3, 17)

$y - 17 = \underline{m}(x-3)$



$\frac{y-17}{x-3} = M$

$=$

$y = 3x^2 - 4x + 2$

$\frac{dy}{dx} = y' = 3 \cdot 2x^1 - 4(1x^0) + 0$

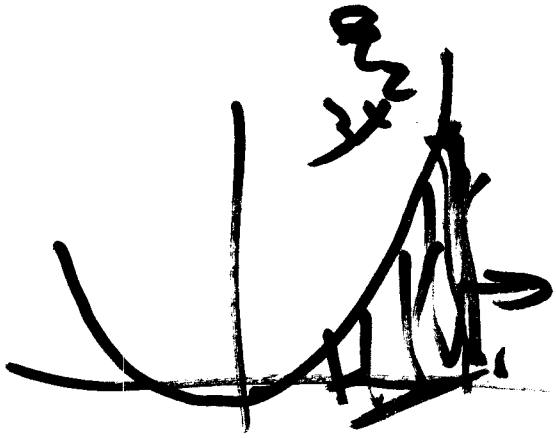
$y' = 6x - 4$

$y'(3) = 6 \cdot 3 - 4$

$= 14$

$y' = 3x^2$

$y = -x^3 + 5 + C$



Find the equation of line tangent to curve

$y = 7x^5 - 3x^2$ 2, f(2) 212

at $x = 2$

$y - (\underbrace{7 \cdot 2^5 - 3 \cdot 2^2}_{212}) = m(x - 2)$

$y' \; f'(x) = 35x^4 - 6x$

$\frac{dy}{dx}$ $m = 35 \cdot 16 - 12$

$$y = \frac{1}{x} + \sqrt[3]{x}$$

$$y = x^{\frac{1}{3}} + x^{-1}$$

$x = 8 \Rightarrow y = 2 + \frac{1}{8}$

$= 2.125$

$(8, 2.125)$

$y - 2.125 = \left(\quad\right)(x - 8)$

$y' = \frac{1}{3}x^{-\frac{2}{3}} + (-1x^{-2}) \quad x = 8$

$\frac{1}{3(8x)^2} - \frac{1}{x^2} = \left(\frac{1}{12} - \frac{1}{64}\right)$

$y = 2^x$

$2^3 = 8$

$2^4 = 9$

~~$y' \neq x \cdot 2^{x-1}$~~