

	D	t	s
P1			
P2			

ST 4
 N 10d
 Ra

$$10d) \frac{x}{6x-9} \leq \frac{1}{x}$$

$$\frac{x}{6x-9} - \frac{1}{x} \leq 0$$

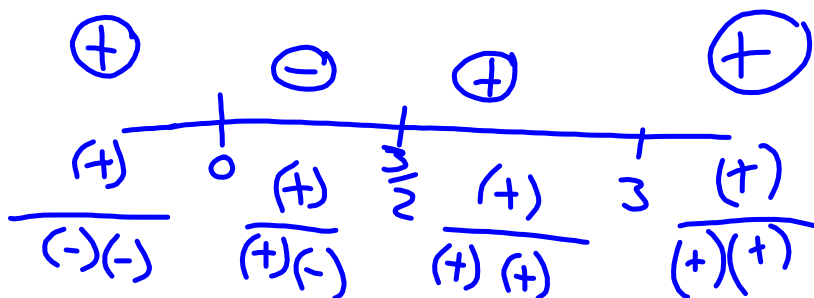
$$\frac{x^2 - (6x-9)}{x(6x-9)} \leq 0$$

$$\frac{x^2 - 6x + 9}{3x(2x-3)} \leq 0$$

$$\frac{(x-3)^2}{3x(2x-3)} \leq 0$$

C.P. $\rightarrow x = 0, \frac{3}{2}, 3$

$\therefore (0, \frac{3}{2})$
 $0 < x < \frac{3}{2}$



$$12a) \quad f(x) = \frac{x+3}{x-3}, \quad x=4$$

✦ can't be done at $x=3$

$$\frac{f(x+h) - f(x)}{h}, \quad h \rightarrow 0$$

$$= \frac{\frac{4+h+3}{4+h-3} - \left(\frac{4+3}{4-3}\right)}{h}, \quad h \rightarrow 0$$

$$= \frac{\frac{7+h}{1+h} - \frac{7}{1}}{h}, \quad h \rightarrow 0$$

$$= \frac{\frac{7+h - 7(1+h)}{1+h}}{h}, \quad h \rightarrow 0$$

$$= \frac{\frac{7+h-7-7h}{1+h}}{h}, \quad h \rightarrow 0$$

$$= \frac{\frac{-6h}{1+h}}{h}, \quad h \rightarrow 0$$

$$= \frac{-6\cancel{h}}{1+h} \times \frac{1}{\cancel{h}}, \quad h \rightarrow 0$$

$$= \frac{-6}{1+h}, \quad h \rightarrow 0$$

$$m_T = -6$$

find equation of
tangent at $x=4$

$$f(4) = 7 \quad (4, 7)$$

$$m = -6$$

$$y = -6x + b$$

$$7 = -6(4) + b$$

$$7 = -24 + b$$

$$31 = b$$

$$\therefore y = -6x + 31$$

$$4) \quad \text{original price} = \frac{2249.52}{x}$$

$$\text{new price} = \frac{10838.52}{x-25}$$

$$\text{new} - \text{old} = 2$$