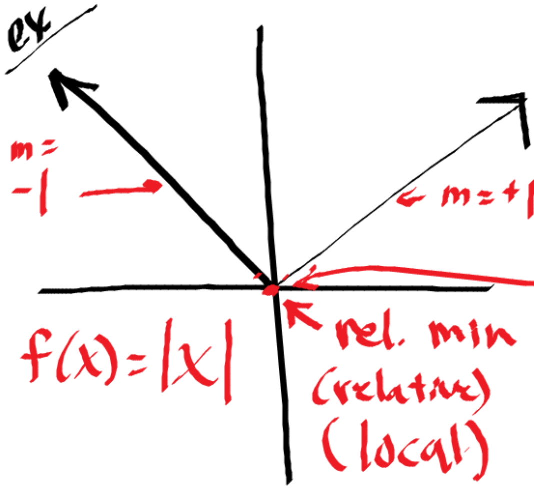
Calculus



No slope @ this point

$$= \text{derivative} \to \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

Big idea: relative extrema occur not just when derivatives equal zero, but also where derivatives do not exist (see definition of critical numbers for more detail).

9. $t = \dfrac{-r^2}{3r-3} \quad \begin{matrix} f \\ g \end{matrix}$ $\qquad f' = -2r$

$\qquad\qquad\qquad\qquad\qquad\qquad g' = 3$

$$t' = \frac{f'g - fg'}{(g)^2} = \frac{-2r(3r-3) - (-r^2)(3)}{(3r-3)^2}$$

$$t' = \frac{-3r^2 + 6r}{(3r-3)^2} \leftarrow \frac{-6r^2 + 6r + 3r^2}{(3r-3)^2}$$

deriv = 0

$-3r^2 + 6r = 0$

$-3r(r-2) = 0$

$r = 0 \quad r = 2$

deriv undefined

$\sqrt{(3r-3)^2} = \sqrt{0}$

$3r - 3 = 0$

$r = 1$