

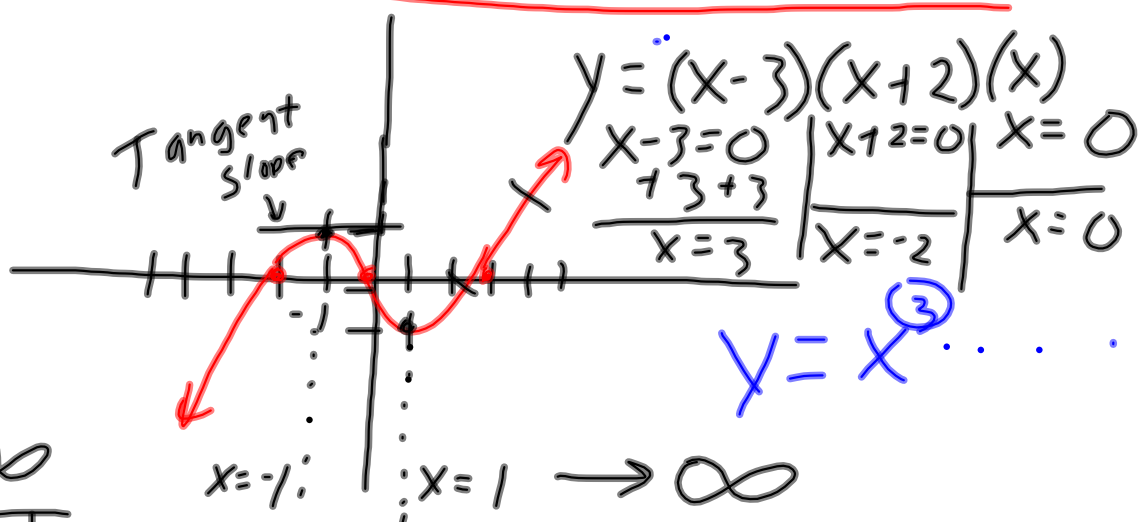
# Unit # 2 - Exponential & Logarithmic Functions.

$$\text{Exp.} \Rightarrow Y = 2^x$$

$$\text{Log} \Rightarrow \text{Log}_3 27 = X$$

← Base

Avg Rate of Change: Today



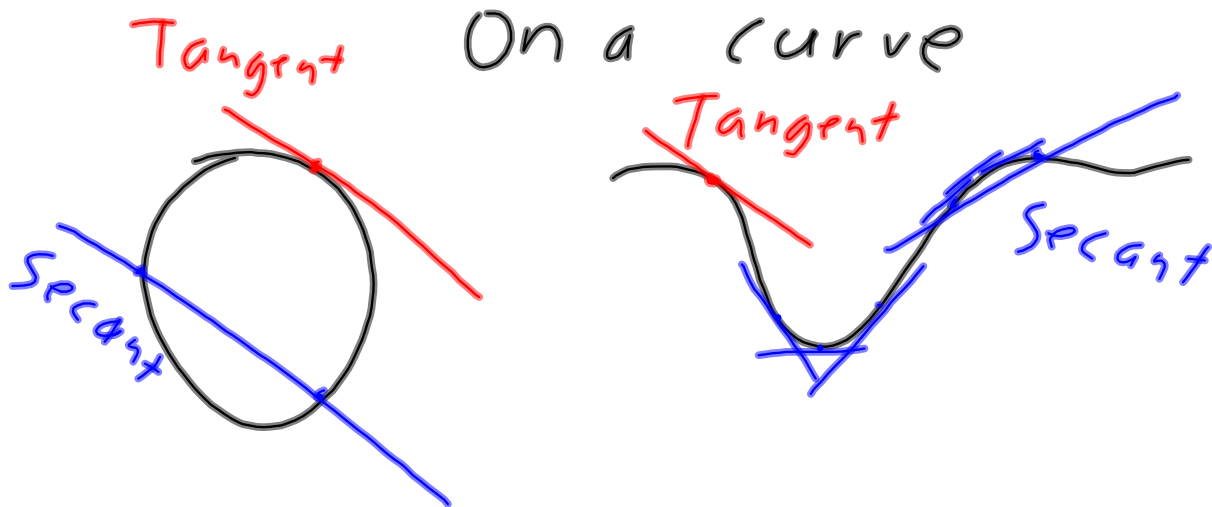
Interval = A section of a graph from one "X" to another "X"

Interval  $\rightarrow [-1, 1]$   $(-1, 1) \leftarrow$  point

From 1 X to another X A Specific point

Tangent - Touches only one point  
on a curve.

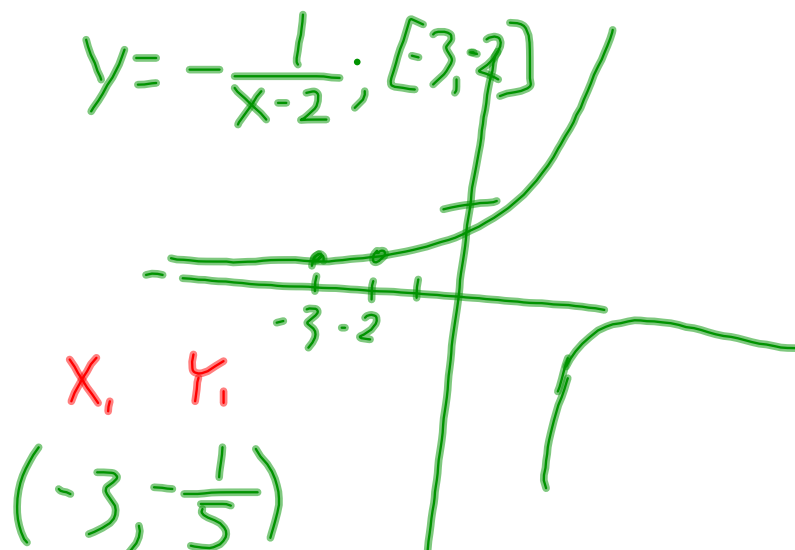
Secant - Goes through 2 points



#2

$$x = -3 \quad y = \frac{1}{-3-2}$$

$$= \frac{1}{-5}$$



$$x = -2$$

$$y = \frac{1}{-2-2} = -\frac{1}{4}$$

$$(-2, -\frac{1}{4})$$

$$\frac{-\frac{1}{4} - (-\frac{1}{5})}{-2 - 3}$$

$$\frac{-\frac{1}{4} + \frac{1}{5}}{-5} = \frac{-\frac{1}{4} + \frac{1}{5}}{-5} = \frac{-\frac{5}{20} + \frac{4}{20}}{-5} = \frac{-\frac{1}{20}}{-5} = \frac{-1}{20}$$

R.O.C. =  $\frac{-1}{20}$

$$5) y = x^2 + 2; \quad [-2, -\frac{3}{2}]$$

$$y_1 = (-2)^2 + 2$$

$$y_1 = 6$$

$$y_2 = (-\frac{3}{2})^2 + 2$$

$$y_2 = \frac{9}{4} + 2$$

$$= 2\frac{1}{4} + 2$$

$$y_2 = 4\frac{1}{4}$$

$$[-2, -\frac{3}{2}]$$

$$x_1 \quad x_2$$

$$(-2, 6)$$

$$(-\frac{3}{2}, 4\frac{1}{4}) \Rightarrow (-\frac{3}{2}, \frac{17}{4})$$

$$ROC = \frac{\frac{17}{4} - 6(\frac{4}{4})}{-\frac{3}{2} + 2}$$

$$\frac{\frac{17}{4} - \frac{24}{4}}{-\frac{3}{2} + \frac{4}{2}} = \frac{-\frac{7}{4}}{\frac{1}{2}}$$

Avg R.O.C.

$$\frac{-\frac{7}{4}}{\frac{1}{2}} \cdot \frac{\frac{2}{1}}{\frac{2}{1}} = \frac{-\frac{14}{4}}{1} = \left( \frac{-14}{4} \right)$$