2.4 Rates of Change and Tangent Lines Day 1
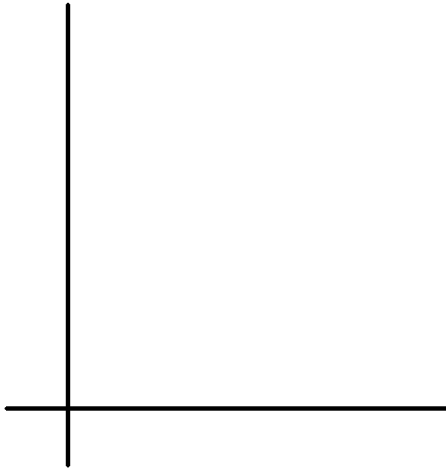
Slope of a line $= \dfrac{\Delta y}{\Delta x}$

average rate of change $= \dfrac{\text{amount of change}}{\text{time it takes}}$
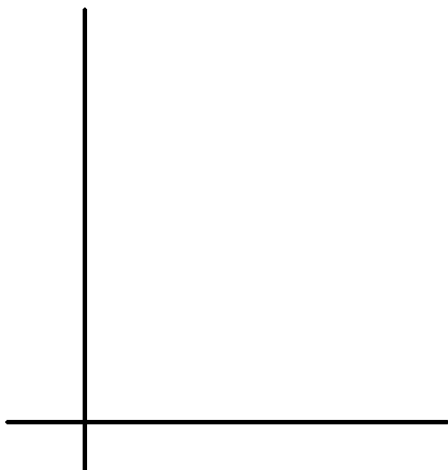
Ex 1) $y = x^2$ $[0, 3]$

Find the slope of the secant line

Slope of a line $= \dfrac{\Delta y}{\Delta x}$

Find the slope at a given point

Ex 2) $y = x^2$

$$\lim_{h \to 0} \frac{f(a+h) - f(a)}{h}$$

- Slope at a given point
- Slope of the tangent line
- Numerical Derivative

Ex 3) Find the slope of y = x²+2 at x =1

$$\lim_{h \to 0} \frac{f(a+h) - f(a)}{h}$$

Ex4) Find an equation for the line tangent

to the graph of $y = x^2 + 2$ at $x = 1$