$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

1-1 Day 1

1.) Find the slope of the line passing through each pair of points.

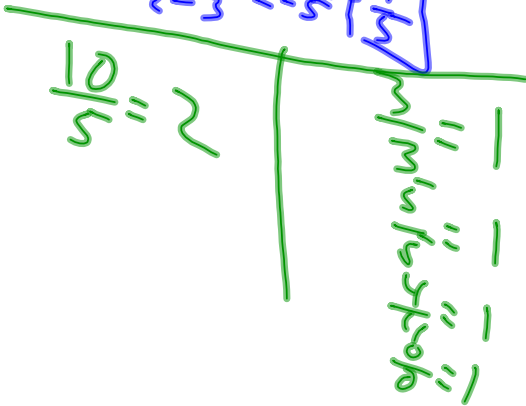A.) (-2,0) and (3,1)

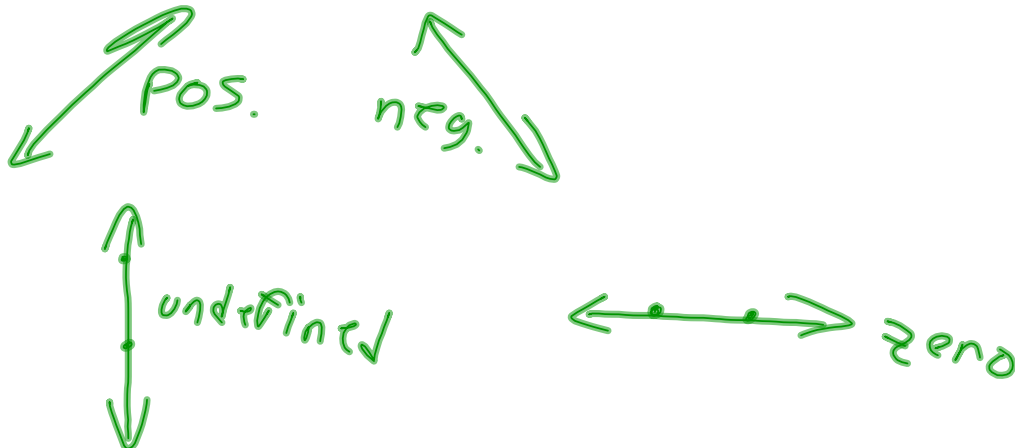$$m = \frac{\Delta y}{\Delta x} = \frac{1-0}{3--2} = \boxed{\frac{1}{5}}$$

$$\frac{0-1}{-2-3} = \frac{-1}{-5} = \boxed{\frac{1}{5}}$$

$$\frac{10}{5} = 2$$

$$\frac{1}{1} = 1$$

$$\frac{1}{1} = 1$$

always the slope $= 1$

B.) (-1,2) and (2,2)

$$\frac{\Delta y}{\Delta x} = \frac{2-2}{2--1} = \frac{0}{3} = 0$$

undefined: $\frac{3}{0}, \frac{5}{0}, \frac{6}{0}$

Slopes

pos.   neg.

undefined $\longleftrightarrow$ zero

Point-slope form: $y - y_1 = m(x - x_1)$

2.) Find an equation of the line passes through the point (1,-2) and has a slope of 3.

$m = 3$

$x_1 = 1$

$y_1 = -2$

$y - -2 = 3(x - 1)$

$y + 2 = 3x - 3$

$ -2 -2$

$y = 3x - 5$

Pre-Calculus Lesson 1-1

3.) A jeweler's salary was $28,500 in 2000 and $32,900 in 2002. The jeweler's salary follows a linear growth pattern. What will the jeweler's salary be in 2006?

$x = $ time

$y = $ salary

$(2000, 28500) \quad (2002, 32900)$

$\frac{\Delta y}{\Delta x} = \frac{32900 - 28500}{2002 - 2000}$

$= \frac{4400}{2}$

$m = 2,200$

$y - 28500 = 2200(x - 2000)$

$x = 2006$

$y - 28500 = 2200(2006 - 2000)$

$y - 28500 = 2200(6)$

$y - 28500 = 13200$

$ +28500 +28500$

$y = 41,700$