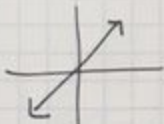


Slope Notes

EQ: Explain how to find the equation of a line that goes through $(0, 2)$ and $(1, -2)$.

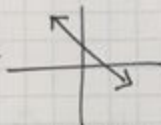
Types of Slope



positive

$$y = 3x$$
$$y = 3x - 2$$

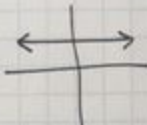
↑
positive
x



Negative

$$y = -3x$$
$$y = -2x + 1$$

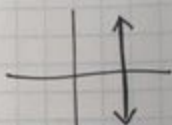
↑
neg
x



zero

$$y = 3$$
$$y = -2$$

↑
zero
x

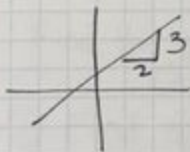


undefined

$$x = 3$$
$$x = -2$$

no y

Slope on a Graph



$$\frac{\Delta y}{\Delta x} = \frac{3}{2}$$

Slope w/ 2 points

$$\begin{matrix} (3, 5) & (7, 2) \\ x & y & x & y \end{matrix}$$

$$\frac{\Delta y}{\Delta x} = \frac{5-2}{3-7} = \boxed{\frac{3}{-4}}$$

$$\frac{2-5}{7-3} = \boxed{\frac{-3}{4}}$$

↑ same
↓

ex 1 Find the slope of the line that passes through $(7, 4)$ and $(2, 5)$.

Ex 2 Find the slope of the line that passes through $(-2, 5)$ and $(3, 6)$.

Find Equation w/ 2 pts

Find the equation of a line that goes through $(2, 5)$ and $(-3, -5)$.

① Find slope $\frac{5 - (-5)}{2 - (-3)} = \frac{10}{5} = 2$

② Find y-intercept by putting known ~~info~~ information into $y = mx + b$ solve for b.

$$5 = 2(2) + b$$

$$5 = 4 + b$$

$$1 = b$$

③ put slope + y-intercept into equation.

$$y = 2x + 1$$

To check, put x + y values for each point into the equation.

$$5 = 2(2) + 1$$

$$5 = 4 + 1$$

✓

$$-5 = 2(-3) + 1$$

$$-5 = -6 + 1$$

✓

Ex 3 Find the equation of a line that goes through $(2, 3)$ + $(4, 5)$.

ex 4 Find the equation of a line that goes through $(-2, 4)$ + $(3, -6)$