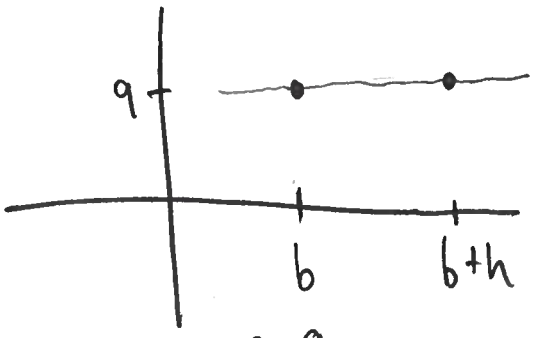
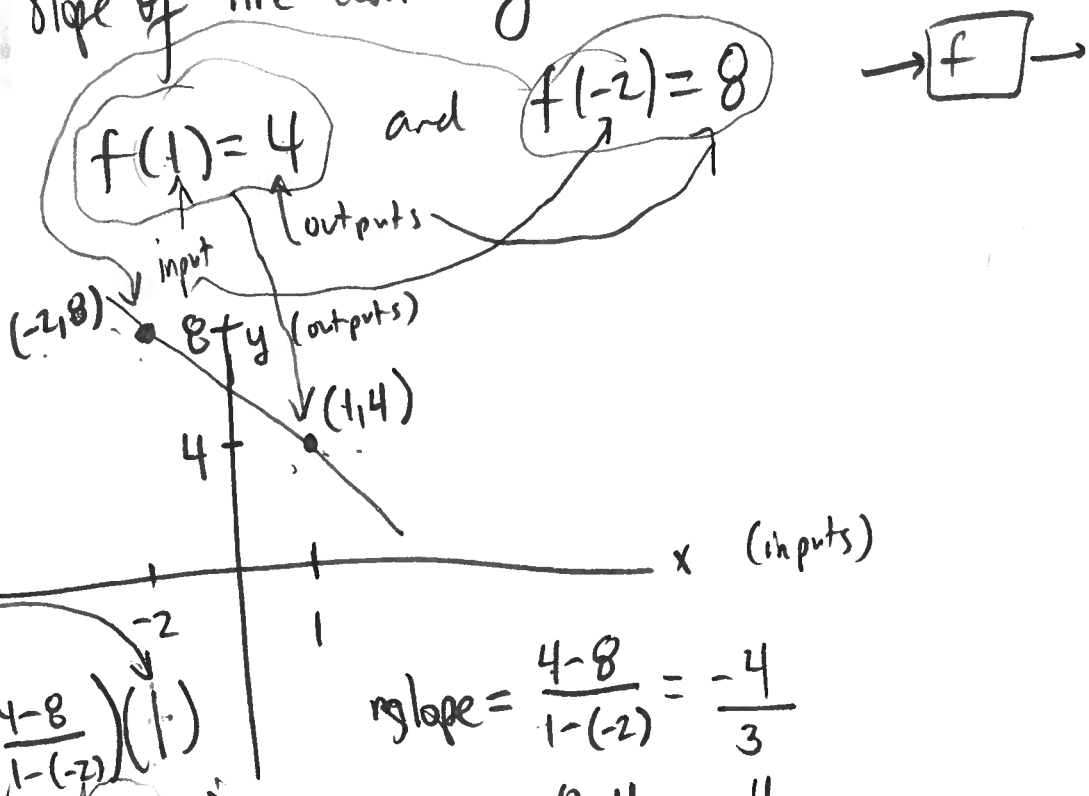
$(b, 0(b)+9) \to (b, 9)$

$(b+h, 0(b+h)+9) \to (b+h, 9)$



$$\text{slope} = \frac{9-9}{b-(b+h)} = \frac{0}{-h} = 0$$

Ex: Slope of line containing



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

$$\left(\frac{4-8}{1-(-2)}\right) = \left(\frac{4-8}{1-(-2)}\right)(1)$$

$$= \left(\frac{4-8}{1-(-2)}\right)\left(\frac{-1}{-1}\right)$$

$$= \frac{8-4}{-2-1}$$

$$\text{slope} = \frac{4-8}{1-(-2)} = \frac{-4}{3}$$

$$\text{slope} = \frac{8-4}{-2-1} = \frac{4}{-3}$$

Ex: linear fnct

$f(x) = ax + b$ when $f(1) = 5$ and $f(-1) = 3$

slope

$f(x) = x + b$

$f(1) = 5$ given

$5 = f(1) = 1 + b$

given compute

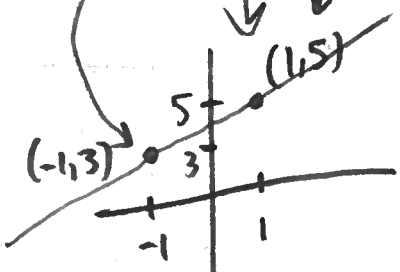
$5 = 1 + b$

subtr 1

$4 = b$

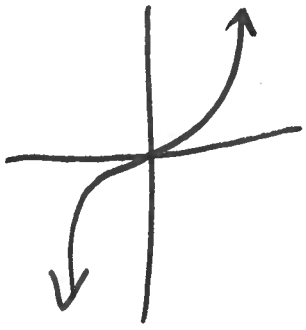
$f(x) = x + 4$

$= 1x + 4$



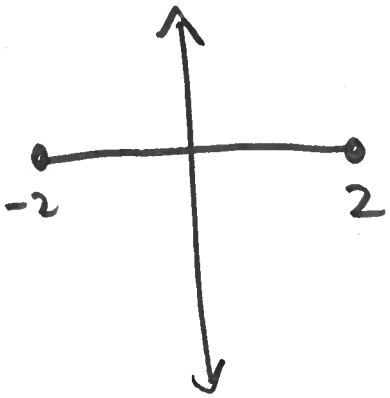
slope $= \frac{5-3}{1-(-1)} = \frac{2}{2} = 1$

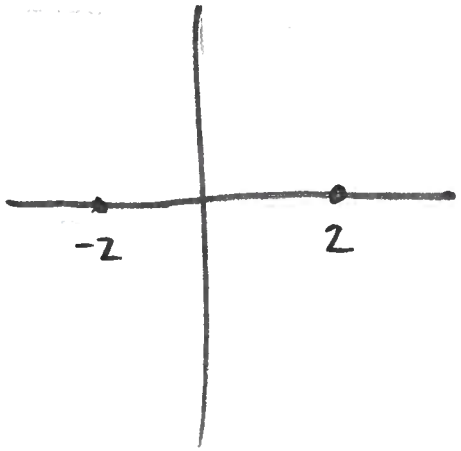
3



$[-2,2] \to \mathbb{R}$

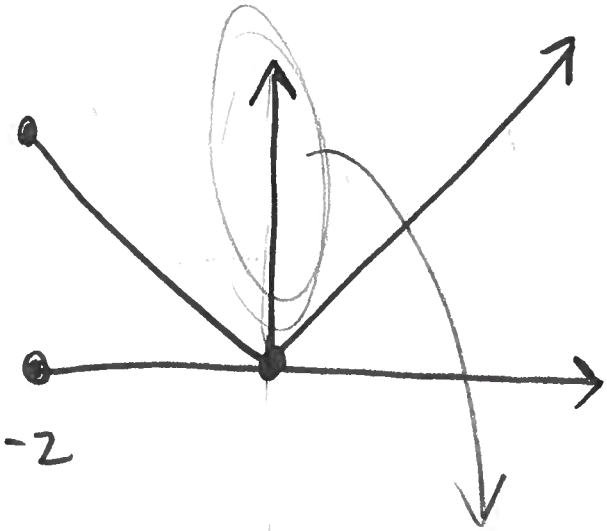
x-axis y-axis

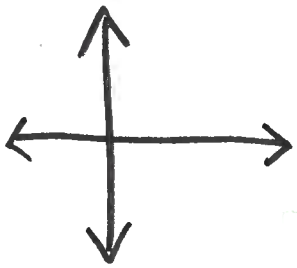




$\mathbb{R} = (-\infty, \infty)$

$\mathbb{R} \to \mathbb{R}$





$f : [-2,\infty) \to [0,\infty)$

name x-axis y-axis

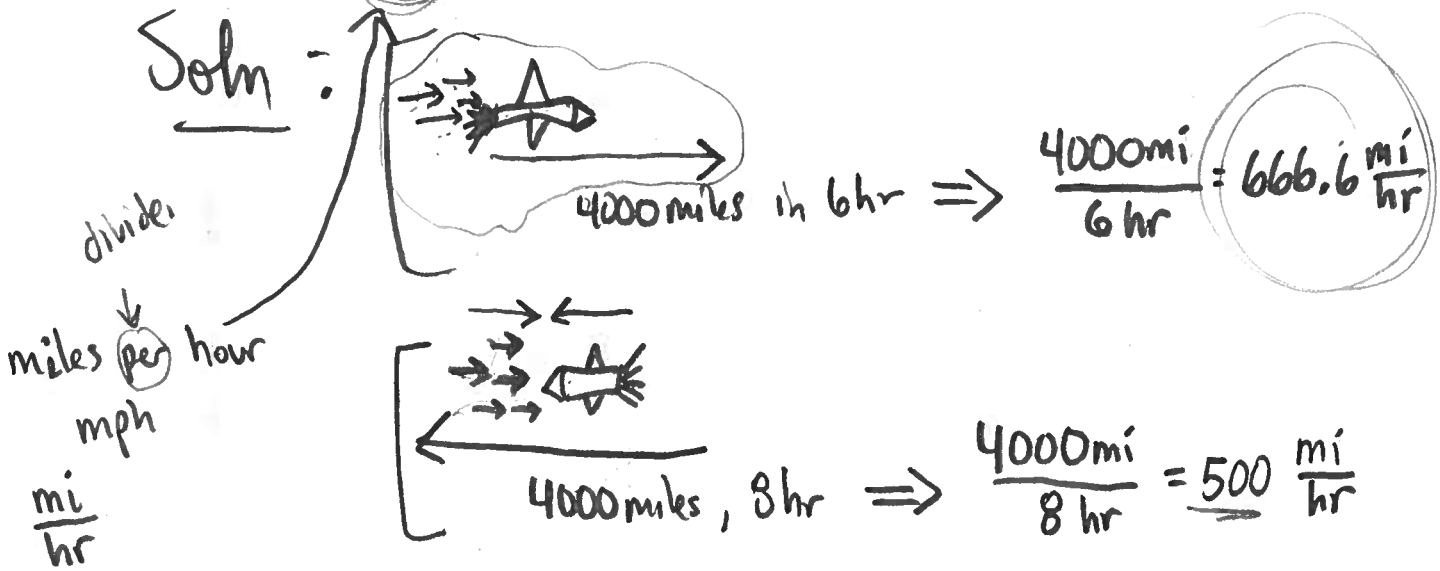
$f(x) =$ ~~~

Ex: Airplane travels 4000 miles in 6 hours with aid of tail wind.

It takes 8 hours for return trip (w/ same wind).

Find speed of airplane with no wind contribution and speed of wind.

Soln:



$\frac{mi}{hr}$ S_A ~ speed of plane (w/o wind affecting)

$\frac{mi}{hr}$ S_W - speed of wind

$$\begin{cases} S_A + S_W = 666.67 \frac{mi}{hr} & \text{(i)} \\ S_A - S_W = 500 \frac{mi}{hr} & \text{(ii)} \end{cases}$$

$\frac{2}{3} = 0.666666\ldots$

$3\overline{)2.0}$ → 0.6, -18, 20

Solve (i) for S_A:

$$S_A = 666.67 - S_W$$

Plug into (ii):

$$666.67 - S_W = 500$$

$$S_W = 666.67 - 500 = 166.67 \ \frac{mi}{hr}$$

$$S_A = 666.67 - 166.67 = 500 \ \frac{mi}{hr}$$

Ex: School fundraiser sold 150 tickets + generated $600.

There were two types of tickets: adult + child.

How many of each type were sold?

$5 $3

A ~ # of adult tickets

C ~ # of child tickets

$$\begin{cases} A + C = 150 & (i) \\ 6A + 3C = 600 & (ii) \end{cases}$$

Solve (i) for C

$C = 150 - A$

Plug into (ii)

$6A + 3(150 - A) = 600$

$6A + 450 - 3A = 600$

$3A = 150 \rightarrow A = \frac{150}{3} = 50$

$C = 150 - 50 = 100$