

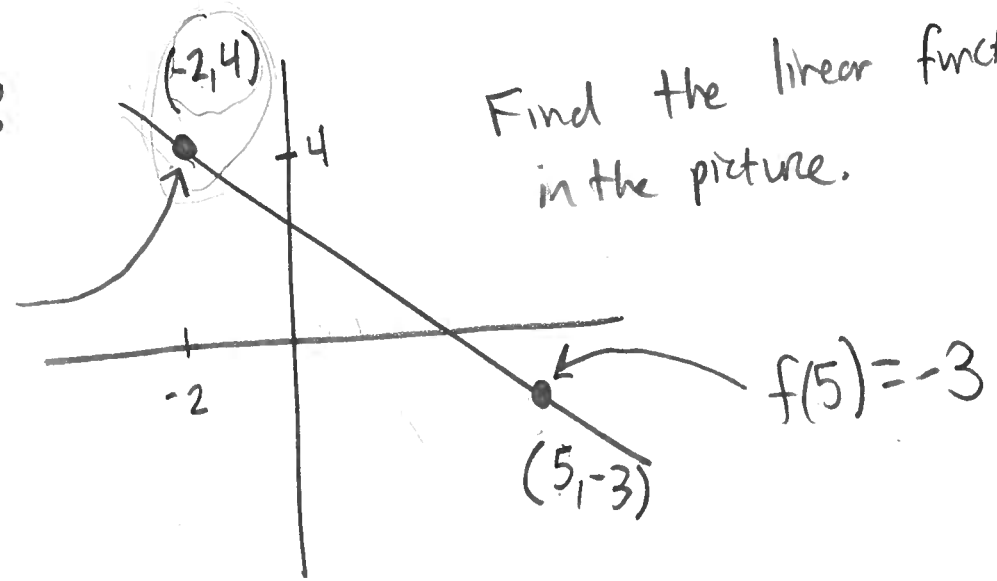
Linear functions

$(-1)x = -x$ $f(x) = ax + b$ \sim $a \sim$ slope
 $b \sim$ y-int

Ex:

Find the linear function in the picture.

$f(-2) = 4$



slope = $\frac{-3 - 4}{5 - (-2)} = \frac{-7}{7} = -1$

$f(x) = -x + b$

Use $f(-2) = 4$

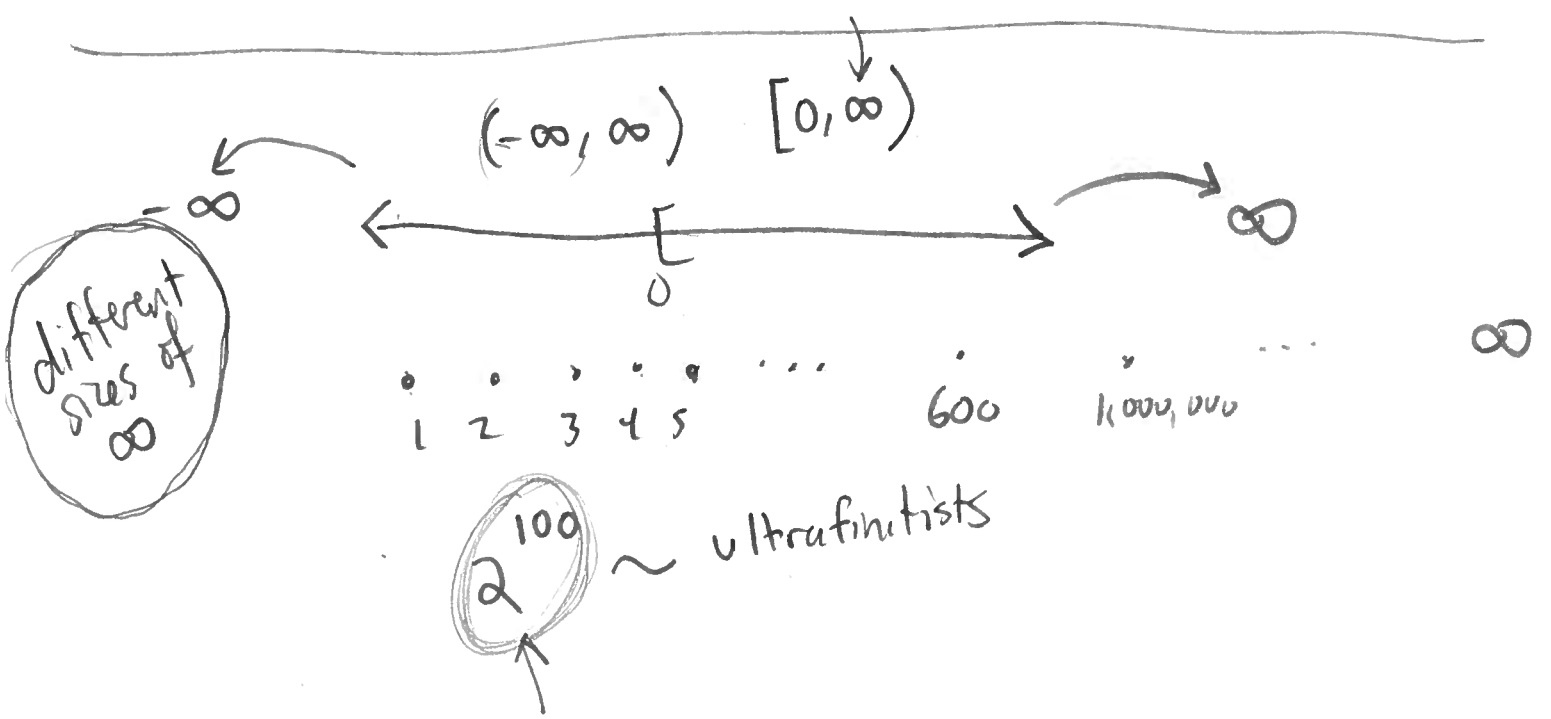
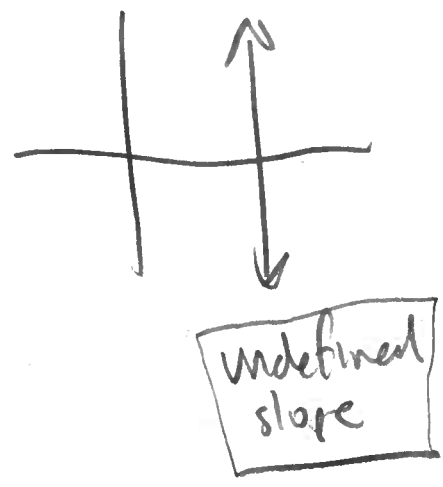
$4 = f(-2) = -(-2) + b$
 \uparrow
 given $4 = 2 + b$
 $b = 2$

$\Rightarrow f(x) = -x + 2$

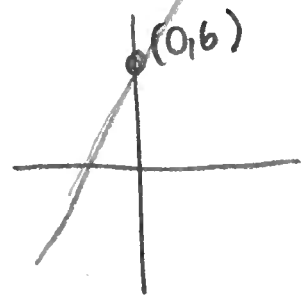
Use $f(5) = -3$

$-3 = f(5) = -5 + b$
 \uparrow
 given $-3 = -5 + b$
 $2 = b$

$f(x) = -x + 2$

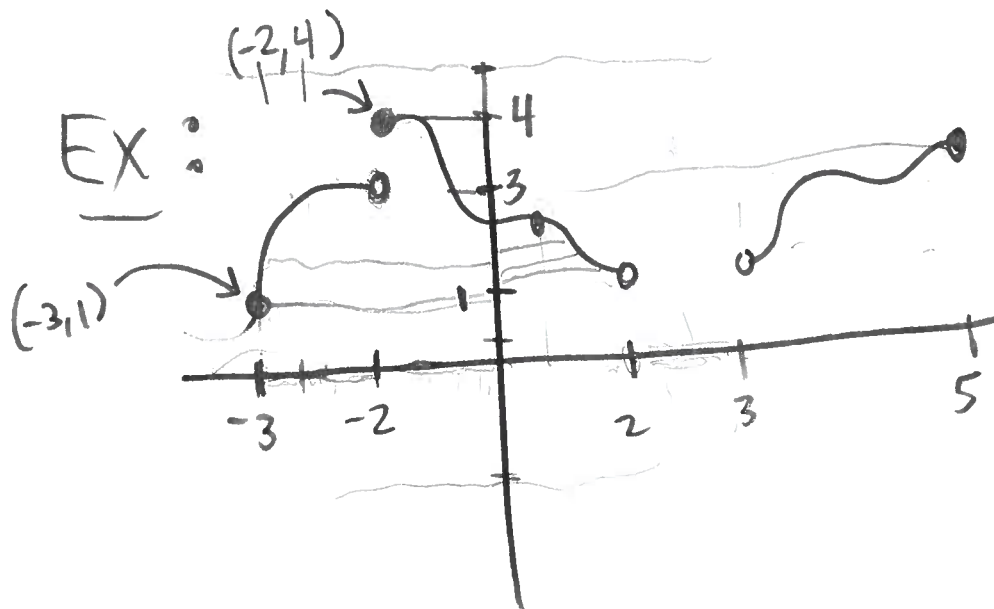


Ex: Find line with slope 2 and y-int 6.

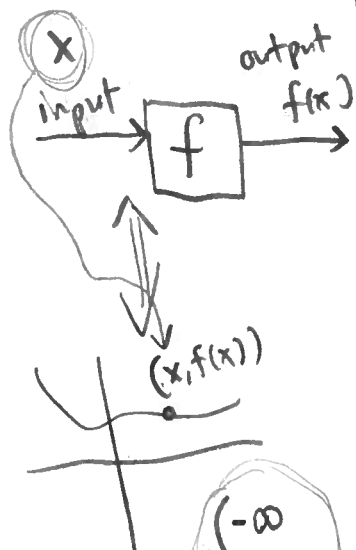


$$f(x) = 2x + 6$$

EX :



Find



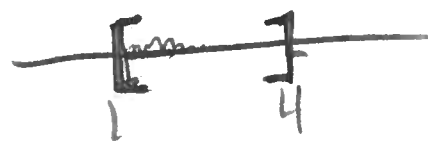
$f(-3) = 1$

$f(-2) = 4$

domain: $[-3, 2) \cup (3, 5]$

range: $[1, 4]$

~~$[1, 1]$~~



- $(-\infty$
- $(-\text{inf}$
- $(-I$



HW 4 - Linear equations

4



Slope-intercept

$$y = mx + b$$

↑ dependent variable ↑ independent variable

point-slope

✓ $(x_0, y_0) \sim$ point on line
✓ m - slope

$$y - y_0 = m(x - x_0)$$

$$y = y_0 + m(x - x_0)$$

Ex: Find equation of line going thru

$(3, 7)$ with slope -2 ,

Soln: x_0 y_0

$$y - 7 = -2(x - 3)$$

(add 7)

$$y - 7 = -2x + 6$$
$$\rightarrow y = -2x + 13$$

Golden Rule of eqt: if you do something to one side, then you must do same to other

Ex: Write in slope intercept form:

$$y = mx + b \quad (5)$$

$$2x - 50y = 8x + 5y - 1$$

Soln: Subtr 5y

$$\frac{-55}{-55} = 1$$

$$2x - 55y = 8x - 1$$

Subtr 2x

$$-55y = 6x - 1$$

$$\frac{a \pm b}{c} = \frac{a}{c} \pm \frac{b}{c}$$

Div by -55

$$\frac{-55y}{-55} = \frac{6x - 1}{-55}$$

$$-\frac{a}{b} = \frac{-a}{b} = \frac{a}{-b}$$

$\Rightarrow = 1$

$$y = \frac{6x}{-55} - \frac{1}{-55}$$

$$= -\frac{6}{55}x + \frac{1}{55}$$