

Name: _____

Date: _____

1. What is the **equation of a line** passing through points $(-5, 1540)$ and $(8, -1320)$?

$$a = \frac{-1320 - 1540}{8 - (-5)}$$

$$a = \frac{-2860}{13}$$

$a = -220$

$$y = ax + b$$

$$1540 = -220(-5) + b$$

$$1540 = 1100 + b$$

$$-1100 \quad -1100$$

$440 = b$

Answer: $y = -220x + 440$

2. What is the **equation of a line** with a rate of change of $-\frac{2}{3}$ passing through point $(-27, 26)$?

$$y = ax + b$$

$$26 = -\frac{2}{3}(-27) + b$$

$$26 = 18 + b$$

$$-18 \quad -18$$

$$8 = b$$

$a = -\frac{2}{3}$

Answer: $y = -\frac{2}{3}x + 8$

3. a) What is the **equation of a line** that would give you the following table of values?

b) What would the **value** of 'x' be?

x	y
-3	-61
2	-1
x	47

$(-3, -61)$
 $(2, -1)$

$$a = \frac{-1 - (-61)}{2 - (-3)} = \frac{60}{5} = 12$$

$$y = ax + b$$

$$-61 = 12(-3) + b$$

$$-61 = -36 + b$$

$$+36 \quad +36$$

$-25 = b$

$$y = 12x - 25$$

$$47 = 12x - 25$$

$$+25 \quad +25$$

$$72 = 12x$$

$$\frac{72}{12} = \frac{12x}{12}$$

$6 = x$

what is x when y = 47 in the equation?

a) Answer: _____
 b) Answer: $x = 6$

$y = 12x - 25$

4. What is the **equation** of a line with an **x-intercept of 6** and a **y-intercept of -18**?

x int: $(x_1, y_1) = (6, 0)$
 y int: $(x_2, y_2) = (0, -18)$ \rightarrow b

$$y = ax + b$$

$$y = 3x - 18$$

$$a = \frac{-18 - 0}{0 - 6} = \frac{-18}{-6} = 3$$

Answer: $y = 3x - 18$

5. a) What is the **equation of the line** represented in the graph at right?

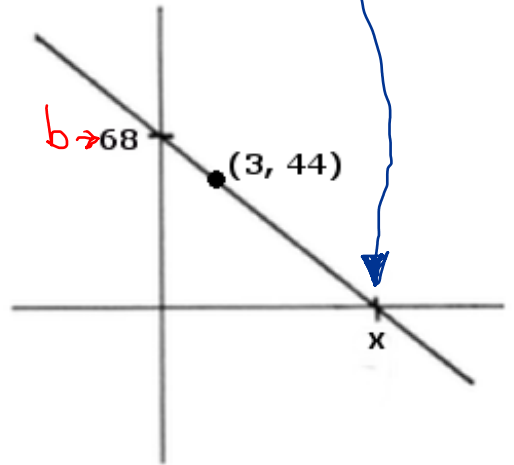
b) What is the value of 'x'? ($y=0$)

$(x_1, y_1) = (0, 68)$

$(x_2, y_2) = (3, 44)$

$$a = \frac{44 - 68}{3 - 0}$$

$$a = \frac{-24}{3} = -8$$



When $y = 0$

$$0 = -8x + 68$$

$$\begin{array}{r} -68 \\ -68 = -8x \end{array}$$

$$\begin{array}{r} -8 \\ -8 = -8x \end{array}$$

$8.5 = x$

a) Answer: $y = -8x + 68$

b) Answer: 8.5

6. Chris wins a math competition and collects a sum of money, which he then deposits at the bank.

He spends ⁶⁰ sixty dollars a day. = a is negative!!!

After 14 days, he has \$960 left.

(x, y)

What is the **equation** that defines how much money Chris has left?

What are the **x- and y- intercepts** of this equation, and **what do they represent**?

X = # of days

y = \$ remaining

$$y = ax + b$$

$$960 = -60(14) + b$$

$$960 = -840 + b$$

$$1800 = b$$

$$y = -60x + 1800$$

x int (made y=0)

$$0 = -60x + 1800$$

$$\frac{-1800}{-60} = \frac{-60x}{-60}$$

$$30 = x$$

Rule: $y = -60x + 1800$

The y-intercept is 1800 and represents: money started with

The x-intercept is 30 and represents: # of days until \$ is zero.