

Directions: Show all work! No calculator.

1. Solve for x.

a. $-6 = -2x + 5$
 $\begin{array}{r} -6 = -2x + 5 \\ +5 \quad +5 \\ \hline -1 = -2x \\ \hline -2 \quad -2 \\ \hline x = \frac{1}{2} \end{array}$

b. $4x + 2x - 3 = 7x - 3 + 2x$
 $\begin{array}{r} 4x + 2x - 3 = 7x - 3 + 2x \\ \cancel{6x} - 3 = \cancel{9x} - 3 \\ -6x \quad -6x \\ \hline -3 = 3x + 3 \\ +3 \quad +3 \\ \hline 0 = \frac{3x}{3} \quad \boxed{x=0} \end{array}$

c. $4x - 5 = 4x - 2$
 $\begin{array}{r} 4x - 5 = 4x - 2 \\ -4x \quad -4x \\ \hline -5 = -2 \end{array}$
no solution

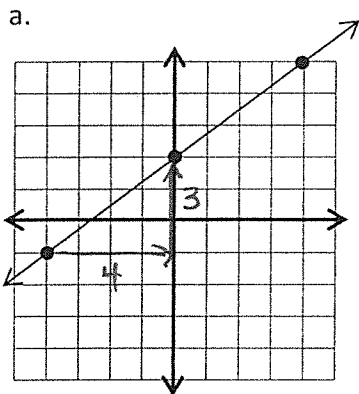
c. $-4(x - 5) = 3(x + 6)$
 $\begin{array}{r} -4x + 20 = 3x + 18 \\ +4x \quad +4x \\ \hline 20 = 7x + 18 \\ -18 \quad -18 \\ \hline 2 = 7x \\ \frac{2}{7} = \frac{7x}{7} \end{array}$

d. $\frac{3x}{4} + 7 = 2$
 $\begin{array}{r} \frac{3x}{4} + 7 = 2 \\ \frac{3x}{4} + 7 + 7 \\ \hline (4) \frac{3x}{4} = 9(4) \\ \frac{3x}{4} = 36 \\ 3x = 36 \\ \frac{3x}{3} = \frac{36}{3} \\ \boxed{x=12} \end{array}$

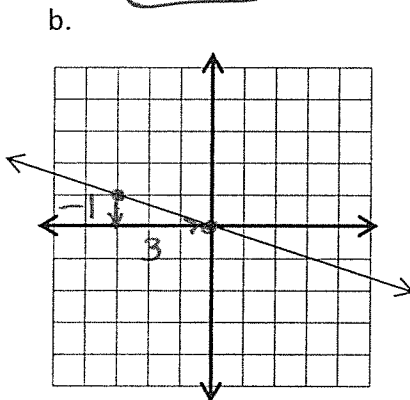
e. $3x + 4 = 6x - 3x + 4$
 $\begin{array}{r} 3x + 4 = 6x - 3x + 4 \\ \cancel{3x} + 4 = \cancel{3x} + 4 \\ -3x \quad -3x \\ \hline 4 = 4 \end{array}$
infinite solutions

$\boxed{x = \frac{2}{7}}$

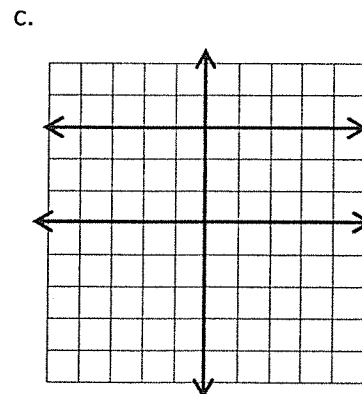
2. Find the slope of each line.



$\left(\frac{3}{4}\right)$



$\left(-\frac{1}{3}\right)$



(0)

3. Is the given point on the line $3x - 2y = -8$? Must show work!

a. $(-1, 5)$

$\begin{array}{l} 3(-1) - 2(5) \stackrel{??}{=} -8 \\ -3 - 10 \stackrel{??}{=} -8 \\ -13 \stackrel{??}{=} -8 \\ \text{no} \end{array}$

b. $(0, 4)$

$\begin{array}{l} 3(0) - 2(4) \stackrel{??}{=} -8 \\ 0 - 8 \stackrel{??}{=} -8 \\ -8 = -8 \end{array}$

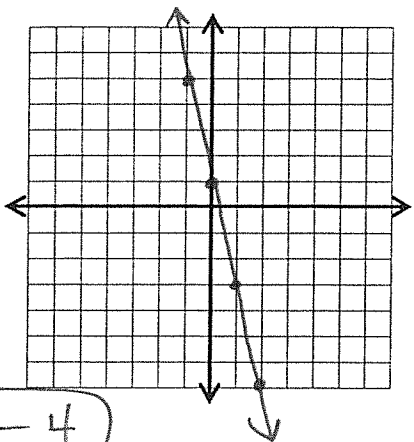
Plug it in + see if it works!!

yes

4. Graph the line by making a table, then give the slope.

a. $y = -4x + 1$

x	y
-2	9
-1	5
0	1
1	-3
2	-7

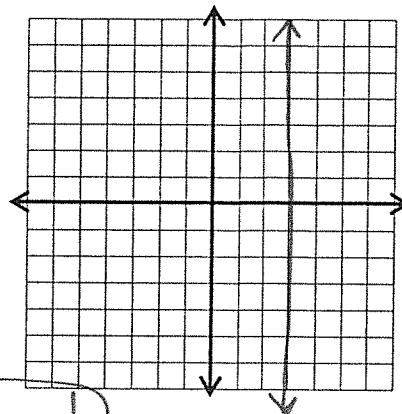


slope =

-4

b. $x = 3$

x	y
3	-2
3	-1
3	0
3	1
3	2



slope =

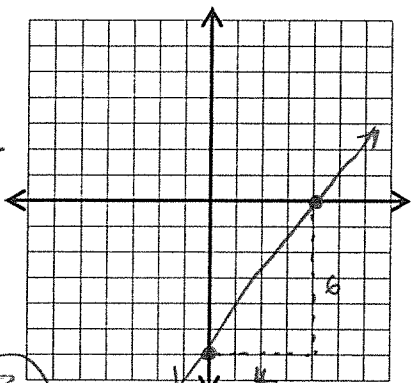
undefined

5. Find the x-intercept and y-intercept. Graph the lines and give the slope.

$3x - 2y = 12$

$3x + y = 6$

x	y
0	-6
4	0

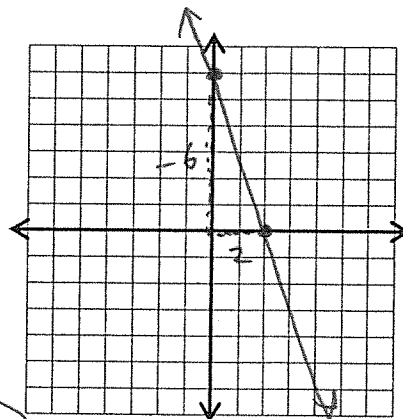


slope =

$\frac{3}{2}$

$\frac{\text{rise}}{\text{run}} = \frac{6}{4} = \frac{3}{2}$

x	y
0	6
2	0



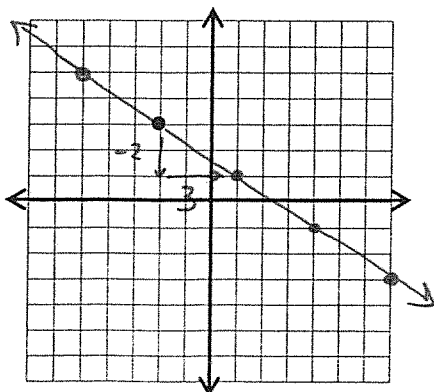
slope =

-3

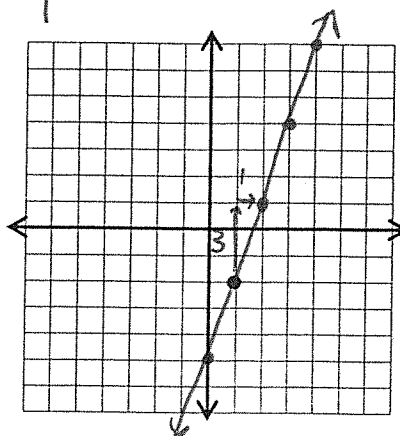
$\frac{\text{rise}}{\text{run}} = \frac{-6}{2} = -3$

6. Graph the line through the given point using the slope.

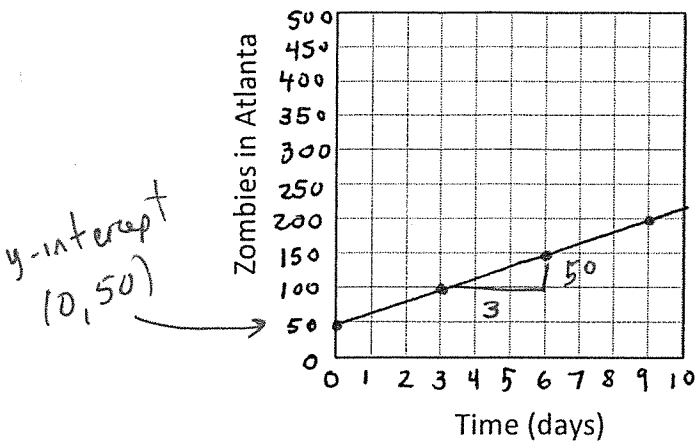
$m = \frac{-2}{3}$



$m = 3$



7. Here is the graph of the number of zombies in Atlanta, Georgia.

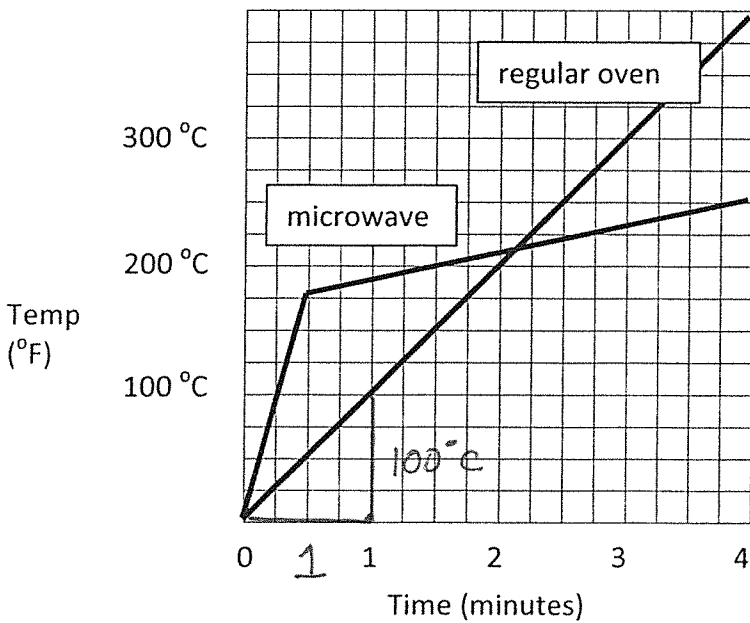


Slope = $\frac{50}{3}$

Explain the meaning of the slope. Every time the # of days goes up by 3, the # of zombies goes up by 50.

Explain the meaning of the y-intercept. At time 0, there were 50 zombies.

8. Here is a graph showing two different methods of heating a dinner, using an oven and a microwave.



Describe the difference between the two methods. You must have 3 differences, and one must be a statement about the slopes and what that means.

- a) (slopes) The microwave started at getting hotter faster, then slowed down.
- b) (slopes) The regular oven heated up at the same speed the whole time
- c) The regular oven ended up hotter than the microwave

9. What is the slope of the regular oven's temperature?

100, or $\frac{100^\circ\text{C}}{\text{minute}}$