

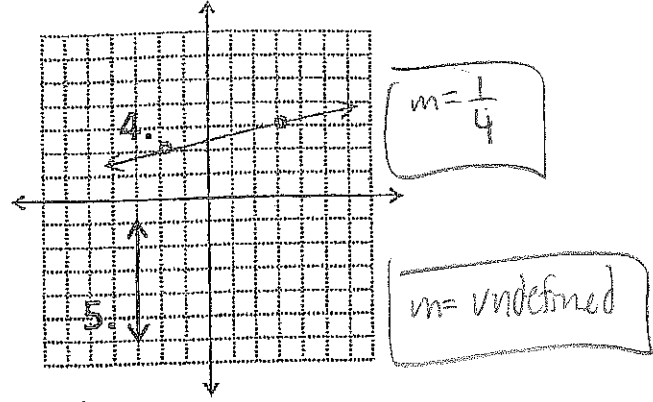
Find slope given the following information.

1. $y = \frac{2}{3}x + 8$ 2. $3x - 8y = 18$ 3. $(10, -4) (-6, 8)$

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

$m = \frac{3}{8}$

$\frac{8 - (-4)}{-6 - 10} = \frac{12}{-16}$
 $m = -\frac{3}{4}$



7. y varies directly with x and $y = 25$ when $x = 6$

- Find the constant of variation
- Write a direct variation equation that describes the relationship between x and y
- Find the value of y when $x = 13$

$y = kx$ $k = \frac{y}{x}$

$k = \frac{25}{6}$

$y = \frac{25}{6}x$

$y = \frac{25}{6}(13)$

$y = \frac{325}{6}$ (or $y = 54.1\bar{6}$)

8. Does the following data represent direct variation? Show the work that justifies your answer.

x	y
5	31
7	43.4
11	68.2

$k = \frac{31}{5} = 6.2$

$k = \frac{43.4}{7} = 6.2$

$k = \frac{68.2}{11} = 6.2$

YES, IT'S DIRECT VARIATION

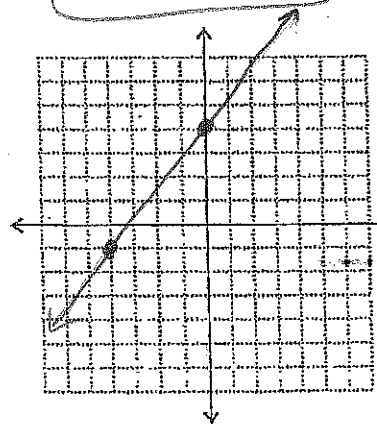
9. Write the following equations in slope intercept form and then graph them.

a) $4y - 5x = 16$

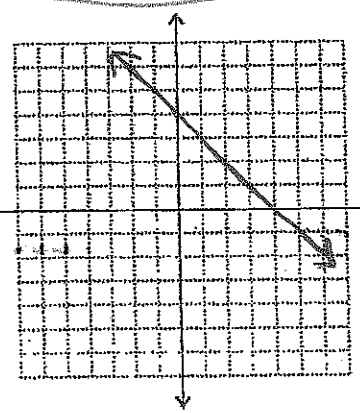
b) $2x + 2y = 8$

c) $\frac{2}{3}y - 6x = 4$ (change scale for graph)

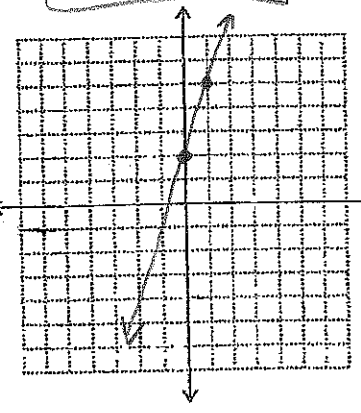
$y = \frac{5}{4}x + 4$



$y = -x + 4$



$y = 9x + 6$



(counting by 3's on y-axis)

10 Write an equation in slope-intercept form given the following information:

a) $m = -4$ $b = 7$

$$y = -4x + 7$$

b) $(9,6)$ $(-3,30)$

$$\frac{30-6}{-3-9} = \frac{24}{-12} = -2$$

$$6 = -2(9) + b$$

$$6 = -18 + b$$

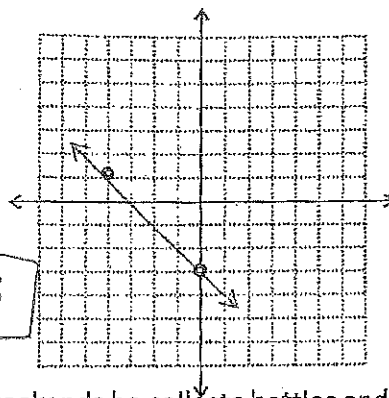
$$24 = b$$

$$y = -2x + 24$$

c) $m = -1$

$$b = -3$$

$$y = -x - 3$$



11. John has \$125 saved up in his bank account. On the weekends he collects bottles and cans at the dump to raise money for a new bike. He earns \$.05 for each bottle or can that he collects. 1) How many bottles and cans does he need to collect in order to purchase a bike that costs \$1105 2) How much money will he have if he collects 500 bottles and cans this weekend?

Write an equation in slope-intercept form and then use it to solve the problem.

$x = \#$ of bottles/cans

$$125 + .05x = 1105$$

$$-.05x = 980$$

$$x = 19,600 \text{ bottles/cans}$$

$$y = -.05x + 125$$

$$y = -.05(500) + 125$$

$$y = 25 + 125$$

$$\text{HE WILL HAVE } \$150 \text{ TOTAL}$$

12. Create an explicit formula for the pattern and then rewrite it as an equation in slope-intercept form.

-15, -19, -23, -27 $d = -4$

$$A_n = 1(1) + (n-1)d$$

$$A_n = -15 + (n-1)(-4)$$

$$A_n = -15 - 4n + 4$$

$$A_n = -11 - 4n$$

$$A_n = -4n - 11$$

$$y = -4x - 11$$

13. Write an equation in Point-slope form given the following information:

a) $m = -2$ $(-5,6)$

$$y - 6 = -2(x + 5)$$

b) $(5,6)$ $(8,21)$

$$\frac{21-6}{8-5} = \frac{15}{3} = 5$$

$$y - 6 = 5(x - 5)$$

or

$$y - 21 = 5(x - 8)$$

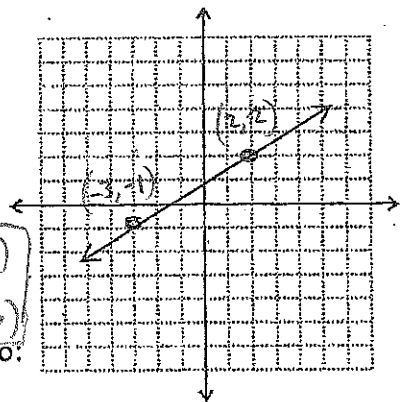
c) \rightarrow

$$m = \frac{3}{5}$$

$$y - 2 = \frac{3}{5}(x - 2)$$

or

$$y + 1 = \frac{3}{5}(x + 3)$$



14. Write an equation in Standard form using integers given the following info.

a) $5y = 15 - 4x$

$$4x + 5y = 15$$

b) $-3y = \frac{3}{4}x + 7$

$$4(-\frac{3}{4}x - 3y) = (7)4$$

$$-3x - 12y = 28$$

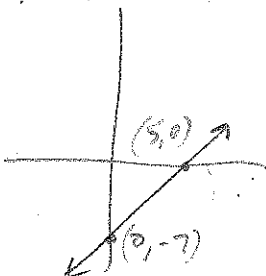
(or $3x + 12y = -28$)

15. Graph the following equations using the x and y intercepts:

a) $7x - 5y = 35$

$$x = 5$$

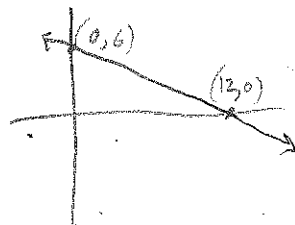
$$y = -7$$



b) $3x + 6y = 36$

$$x = 12$$

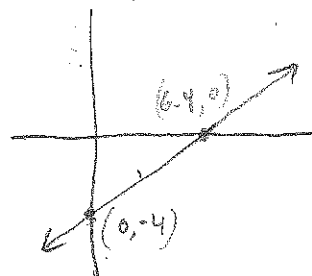
$$y = 6$$



c) $5x - 8y = 32$

$$x = 6.4$$

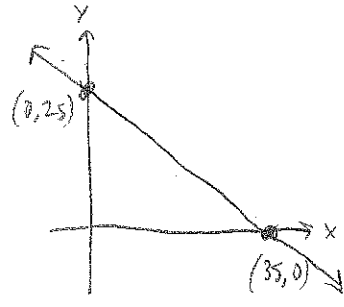
$$y = -4$$



16. At Christmas in the square you could buy candy canes for \$5 and hot chocolate for \$7. The goal was to raise exactly \$175. 1) Write an equation in standard form that would allow you to find 4 different combinations of sales that would have earned the \$175. 2) Use the x and y intercept to draw a quick graph of the intercepts. (label the axis) You can use the calculator if you know how. If not you have to do it out by hand with a full graph.

$$5x + 7y = 175$$

INTERCEPTS:
 $x = 35$
 $y = 25$



Compos:

x	y
0	25
7	20
14	15
21	10
28	5
35	0

$$y = -\frac{5}{7}x + 25$$

$$m = -\frac{5}{7}$$

17. Put the Following data into your calculator and develop an equation that models the data (line of best fit).

X	Y
# of lobsters traps	Lobsters in the harbor
100	1500
200	1150
300	1050
400	800
500	625
600	400
700	100

$$Y = -2.2x + 1678$$

a) How many lobsters will be in the harbor if there are 550 traps?

$$y = -2.2(550) + 1678$$

468 LOBSTERS

$$y = 468$$

b) How many traps will it take to get the lobster population to equal zero?

$$0 = -2.2x + 1678$$

$$-1678 = -2.2x$$

$$x = 762.7 \rightarrow$$

763 TRAPS

c) What is the correlation coefficient?

a. What does it tell us about this particular problem

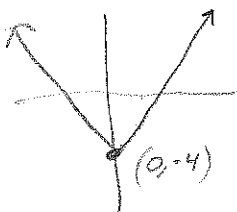
$$r = -.994$$

THE EQUATION $y = -2.2x + 1678$ IS A ^{VERY} GOOD FIT FOR THE DATA PRESENTED

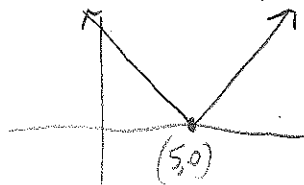
(the closer r is to 1 or -1, the better...)

* 18. Graph the following by using translations of the parent graph.

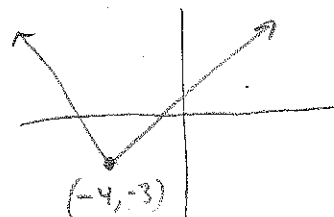
a) $y = |x| - 4$



b) $y = |x - 5|$



c) $y = |x + 4| - 3$



* 19. Graph the following data:

Weight of lobster	Cost
$0 < w \leq 1$	\$5
$1 < w \leq 3$	\$9
$3 < w \leq 5$	\$11
$5 < w \leq 10$	\$15

