NAME: _____ PERIOD: _____ DATE: _____

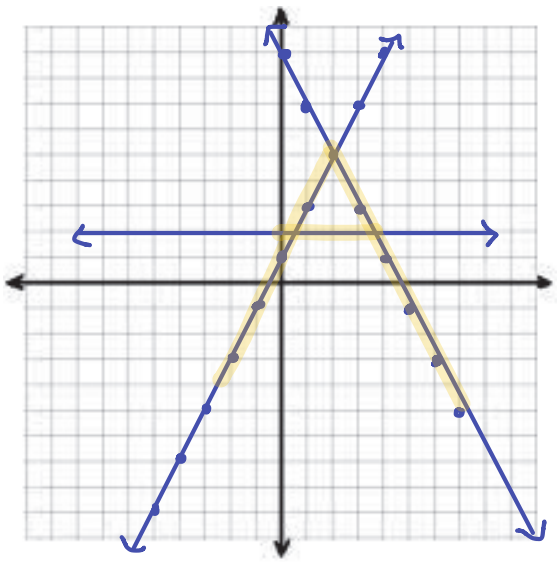
Homework Problem Set

1. Alexis realized that she could use linear equations to graph the first letter of her name. She came up with the following three equations.

$$y = 2x + 1$$

$$y = -2x + 9$$

$$y = 2$$



   A. Graph her three equations and then highlight the "A".

   B. What should she add to her description so that only a part of each line is drawn?

1st Equation: x is between −1 & 2
2nd Equation: x is between 2 & 5
3rd Equation: x is between 0.5 & 4.5

2. **Treasure Hunt!** Below is a map of Math City. Choose a location on the map and then write two or more equations that would help someone determine your location.

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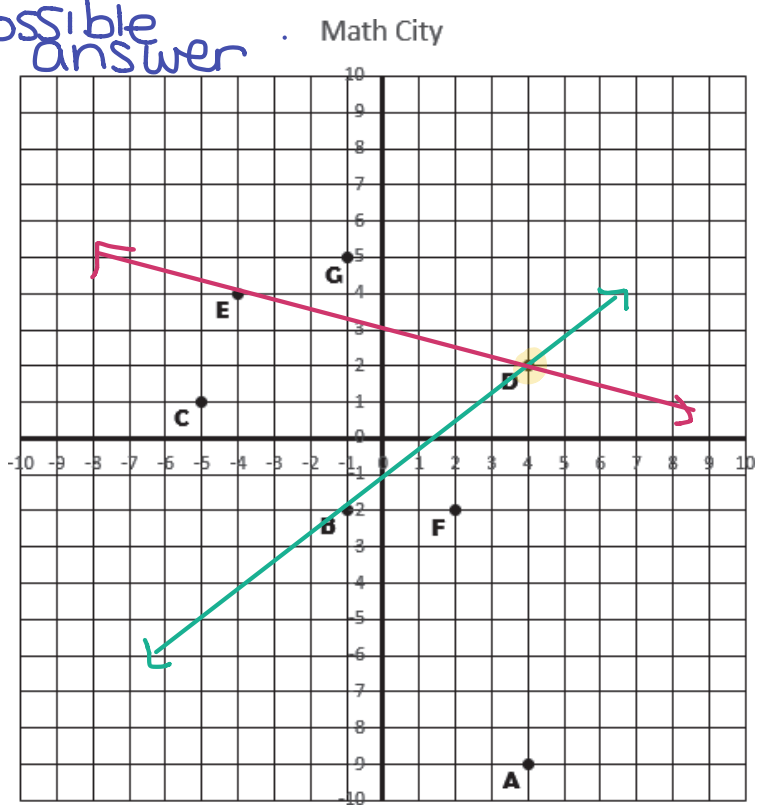
* Possible answer



Legend

A = Algebra Airport

B = Binomial Bank

C = Coefficient Café

D = Delta the Dog Doctor

E = Ellipse Eye Exams

F = Flipping for Fish Store

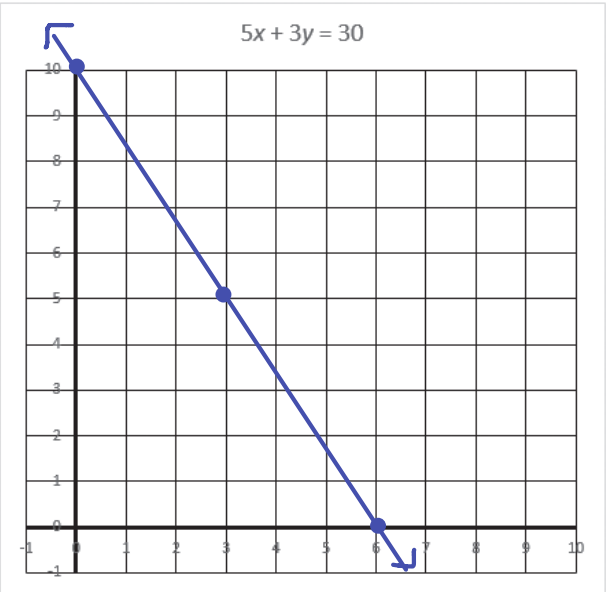
G = GCF Groceries

$y = \frac{4}{5}x - 1$ $y = -\frac{1}{4}x + 3$

Spiral REVIEW—Graphing Lines

Graph the solution set in the coordinate plane. Label at least two ordered pairs that are solutions on your graph.

3. $5x + 3y = 30$



$5x + 3y = 30$

$-5x \qquad -5x$

$\frac{3y}{3} = \frac{-5x}{3} + \frac{30}{3}$

$y = -\frac{5}{3}x + 10$

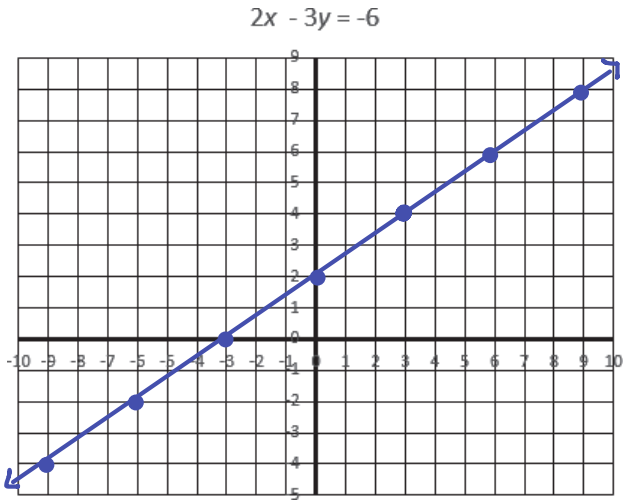
Solutions on graph:

(0, 10)

(3, 5)

(6, 0)

4. $2x - 3y = -6$



$2x - 3y = -6$

$-2x \qquad -2x$

$\frac{-3y}{-3} = \frac{-2x}{-3} - \frac{6}{-3}$

$y = \frac{2}{3}x + 2$

Solutions on graph:

(-9, -4)

(-5, -2)

(-3, 0)

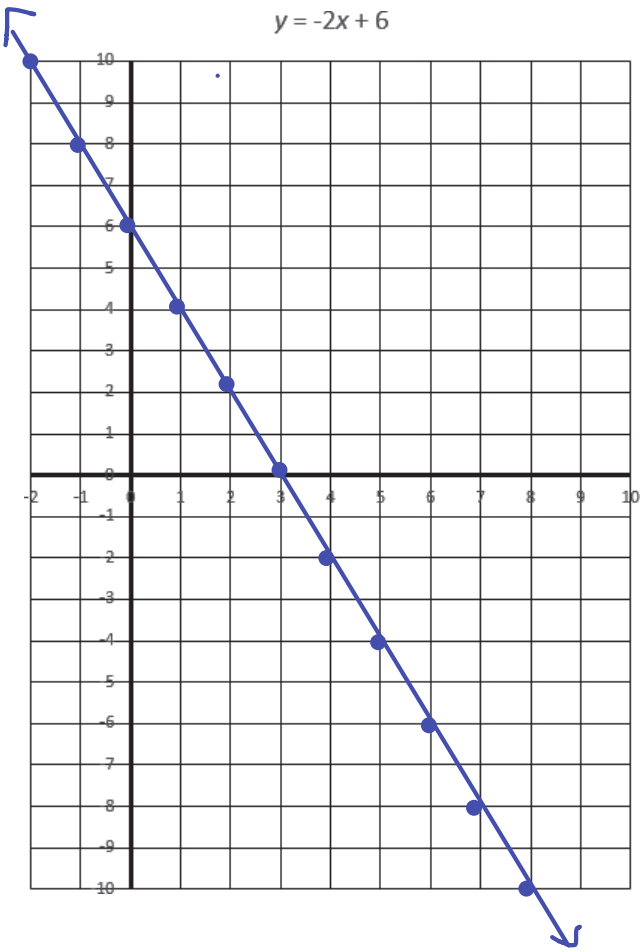
(0, 2)

(3, 4)

(6, 6)

(9, 8)

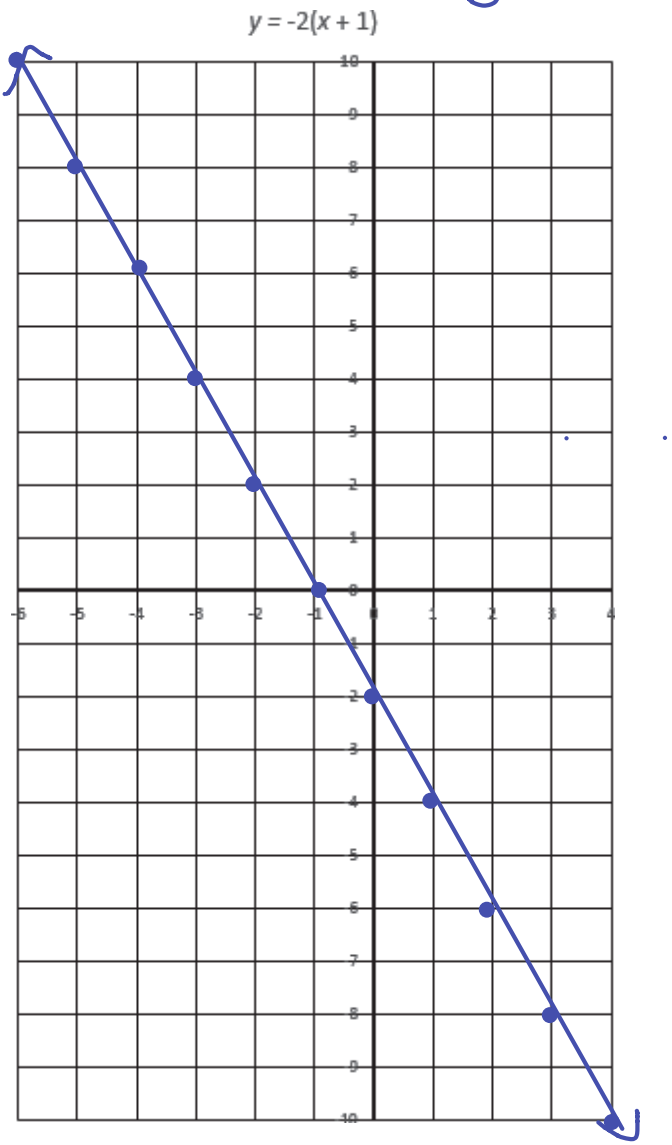
5. $y = -2x + 6$



Solutions on graph

(-1, 8) (3, 0) (7, -8)
(0, 6) (4, -2) (8, -10)
(1, 4) (5, -4)
(2, 2) (6, -6)

6. $y = -2(x + 1)$ → $y = -2x - 2$



Solutions on graph:

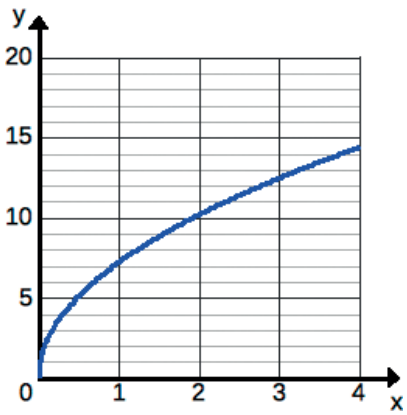
(-6, 10) (-1, 0) (4, -10)
(-5, 8) (0, -2)
(-4, 6) (1, -4)
(-3, 4) (2, -6)
(-2, 2) (3, -8)

Spiral REVIEW—Non-linear Equations

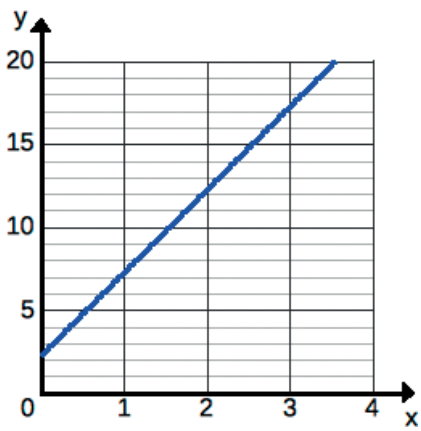
7. Mari and Lori are starting a business to make gourmet toffee. They gather the following information from another business about prices for different amounts of toffee. Which equation and which graph are most likely to model the price, p, for x pounds of toffee? Justify your reasoning.

Pounds x	Price, p, for x pounds
0.25	$3.60
0.81	$6.48
1	$7.20
1.44	$8.64

Graph 1



Graph 2



Equation A: $p = 5x + 2.2$

Equation B: $p = 7.2\sqrt{x}$

Graph 1 is non-linear and fits table data better than Graph 2. Equation B matches graph 1 since it is not a linear equation.

Spiral REVIEW—Rearranging Equations

8. Solve for m.

$t = \frac{ms}{n}$

$m = \frac{nt}{s}$

9. Solve for u.

$\frac{1}{u} = \frac{1}{f}$

$u = f$

10. Solve for s.

$A = s + 3A$

$s = -2A$

11. Solve for h.

$V = \pi r^2 h$

$h = \frac{V}{\pi r^2}$

12. Solve for m.

$T = 4m + 7$

$m = \frac{T-7}{4}$

13. Solve for d.

$F = G\frac{mn}{d}$

$d = \frac{Gmn}{F}$

14. Solve for y.

$ax + by = c$

$y = \frac{c-ax}{b}$

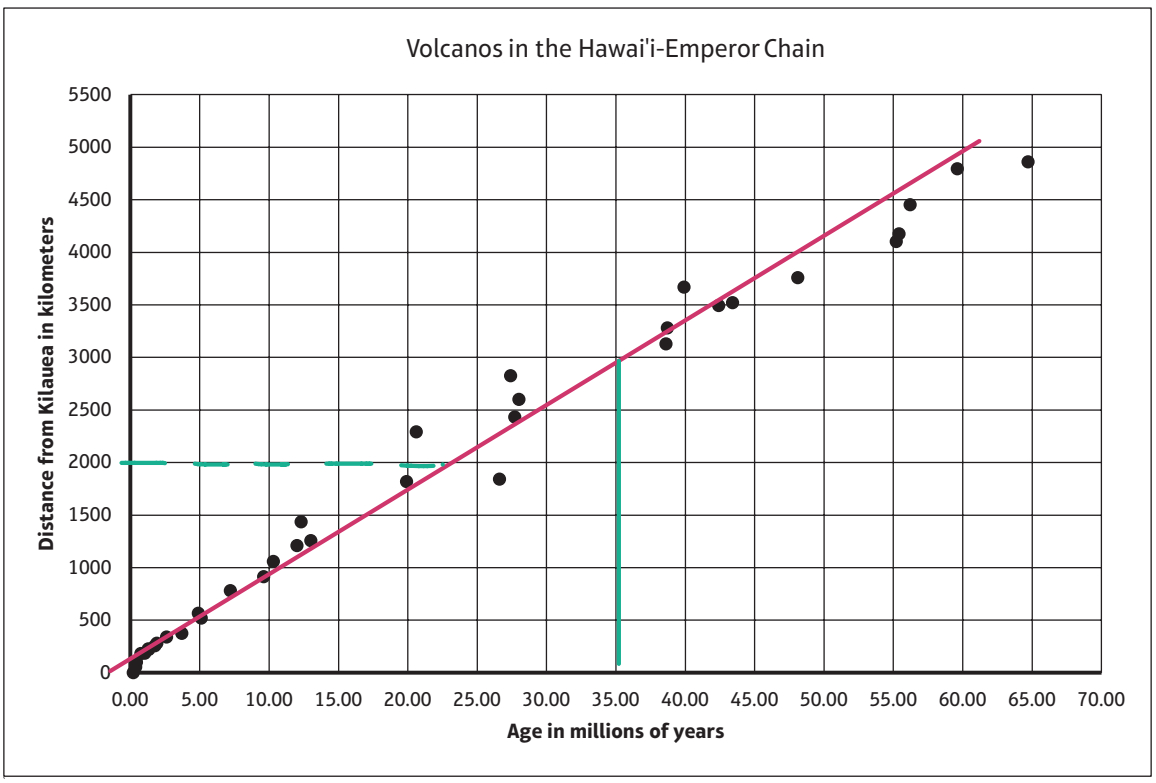
15. Solve for h.

$A = \frac{1}{2}h(b_1 + b_2)$

$h = \frac{2A}{b_1 + b_2}$

Spiral REVIEW—Scatterplots and Lines of Best Fit

16. Draw a line of best fit on the graph below.



17. Use your line to estimate the age of a volcano that is 2000 km from Kilauea.

Around 23 million years old.

18. Use your line to estimate the distance from Kilauea a 35 million year old volcano would be.

about 3000 km