

Honors Algebra 2
Solving Systems of Equations by Graphing

KEY is a system grapher.
Date: _____ Period: _____

Warm-up:

Graph. State the slope and y-intercept.

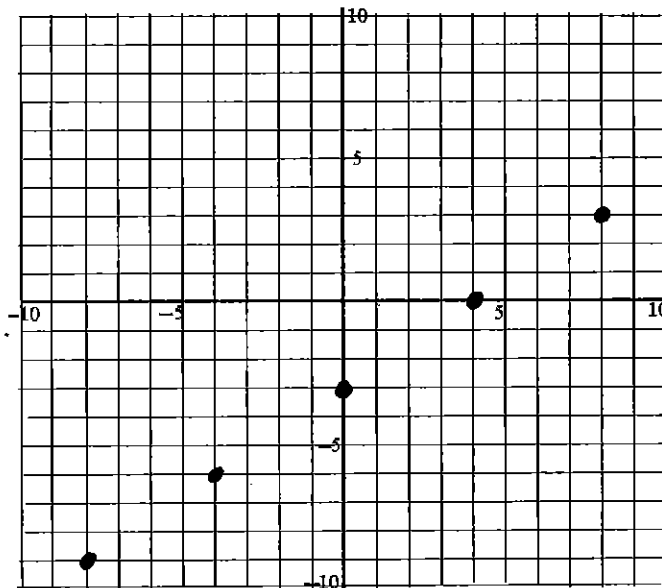
0.) $3x - 4y - 12 = 0$
 $-3x + 12 + 4y = -3x + 12$

$$\frac{-4y}{-4} = \frac{-3x + 12}{-4}$$

$$y = \frac{3}{4}x - 3$$

Slope: $\frac{3}{4}$

y-intercept: -3



Answer the following questions below in complete sentences.

What is a System of Equations?

TWO OR MORE EQUATIONS

What is a Solution to a System of Equations?

WHERE THE TWO EQUATIONS INTERSECT

What does a Solution do for a System of Equations?

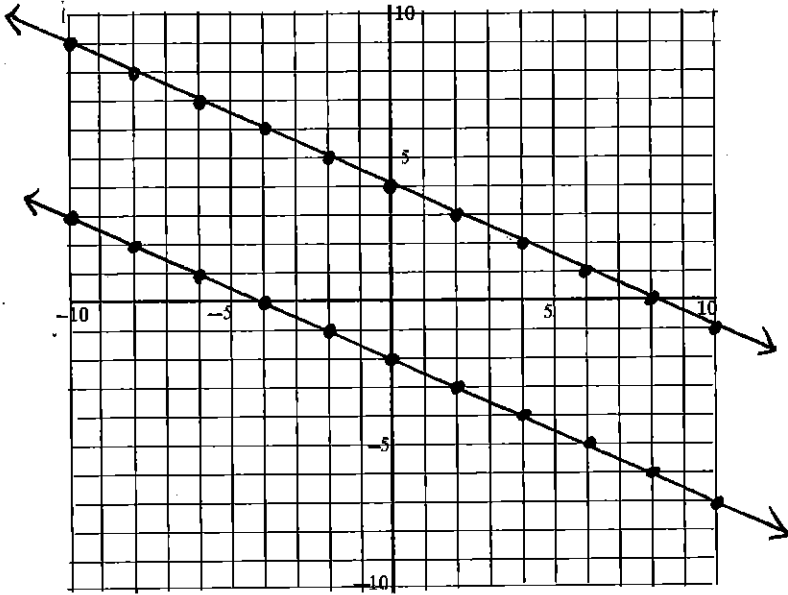
A SOLUTIONS SATISFIES BOTH EQUATIONS (OR ALL EQUATIONS IN THE SYSTEM). MAKES IT A TRUE STATEMENT

Recall the "Starbucks Task"; what did the intersection of the lines representing the equations of the two drinks mean?

Solve.

1.) $3x + 6y + 12 = 0$
 $x + 2y = 8$

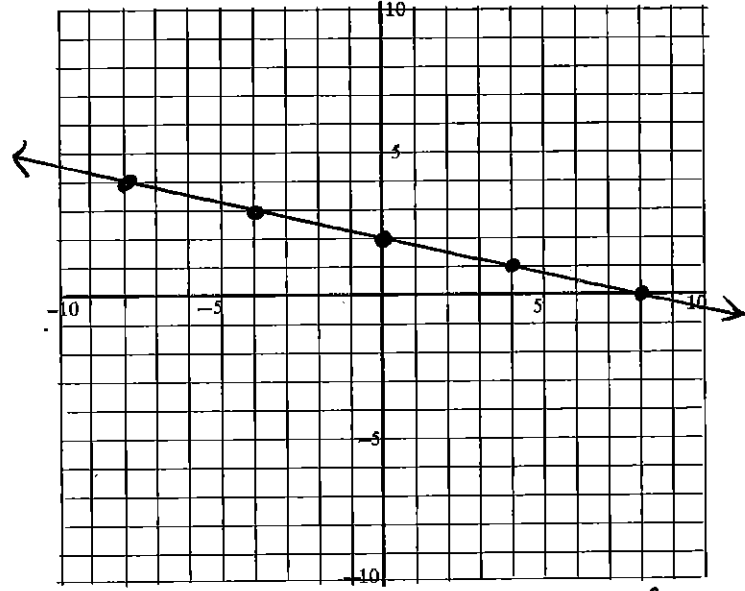
$y = -\frac{1}{2}x - 2$
 $y = -\frac{1}{2}x + 4$



NO SOLUTION

2.) $8 = 4y + x$
 $8y = -2x + 16$

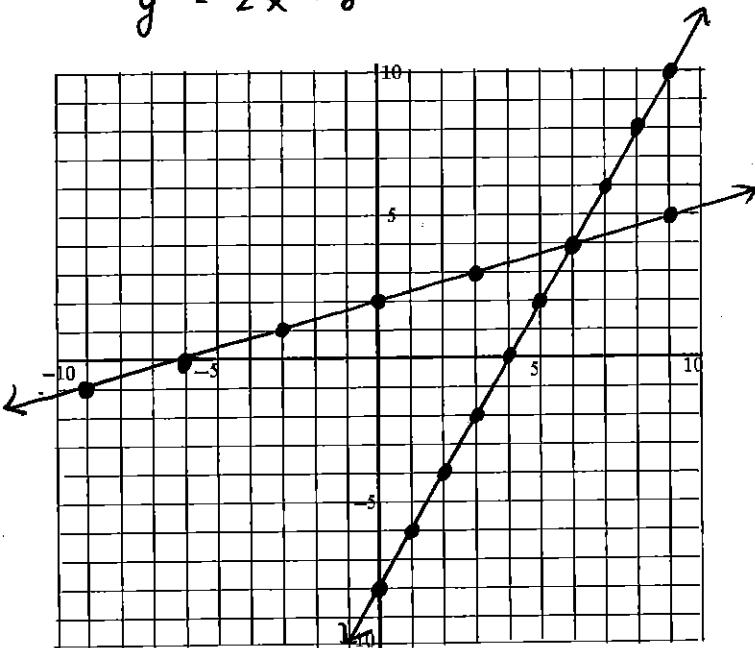
$y = -\frac{1}{4}x + 2$
 $y = -\frac{1}{4}x + 2$



INFINITE SOLUTIONS

3.) $-x + 3y = 6$
 $2x - y = 8$

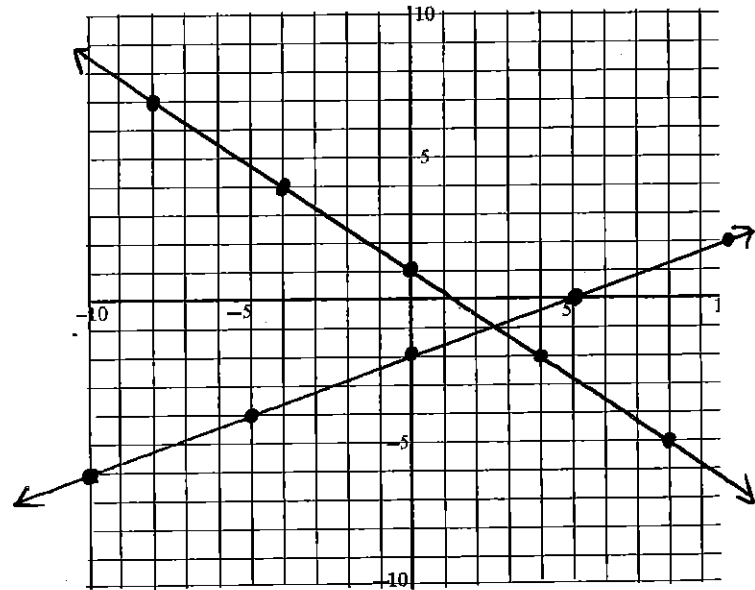
$y = \frac{1}{3}x + 2$
 $y = 2x - 8$



(7, 4)

4.) $2x - 5y = 10$
 $3x + 4y = 4$

$y = \frac{2}{5}x - 2$
 $y = -\frac{3}{4}x + 1$



(2.6, -0.95)

- 5.) To rent a power saw from Home Depot they charge a flat fee of \$25 and \$3.50 per hour. Let h represent the number of hours rented and C represent the total cost of the power saw rental.



- a.) Write an equation to represent the relationship between the number of hours the saw was rented and the total cost of the rental.

$$C = 3.50H + 25$$

- b.) According to your equation, how much would it cost to rent the saw for 24 hours?

$$C = 3.50(24) + 25$$

$$C = \$109$$

- c.) According to your equation, if a person paid \$63.50 for the rental, how long did they rent the saw for?

$$63.50 = 3.50x + 25$$

$$38.5 = 3.50x$$

$$x = 11 \text{ HRS}$$

Simplify. No Calculator. All work must be shown to receive the recognition, praise, and honor you deserve.

$$6.) \quad 25 \cdot (5 - 2) \div 5 - 12 + 24 \div 2^3 + 6 + 2^4 - (1 + 3) + (4^3 - 20 \cdot 3) - 4^2 + 3^5 \div 3 \div (10 - 1) - 8$$

$$\blacksquare 25 \cdot (3) \div 5 - 12 + 24 \div 2^3 + 6 + 2^4 - (4) + (64 - 60) - 4^2 + 3^5 \div 3 \div (9) - 8$$

$$\blacksquare 25(3) \div 5 - 12 + 24 \div \underline{8} + 6 + \underline{16} - 4 + 4 - \underline{16} + \underline{243} \div 3 \div 9 - 8$$

$$\blacksquare 75 \div 5 - 12 + 24 \div 8 + 6 + 16 - 4 + 4 - 16 + 243 \div 3 \div 9 - 8$$

$$\blacksquare 15 - 12 + 3 + 6 + 16 - 4 + 4 - 16 + 81 \div 9 - 8$$

$$\blacksquare 15 - 12 + 3 + 6 + 16 - 4 + 4 - 16 + 9 - 8$$

$$\blacksquare 13$$