$2x + 3y = 16$

$3y = -2x + 16$

$y = \frac{-2}{3}x + \frac{16}{3}$

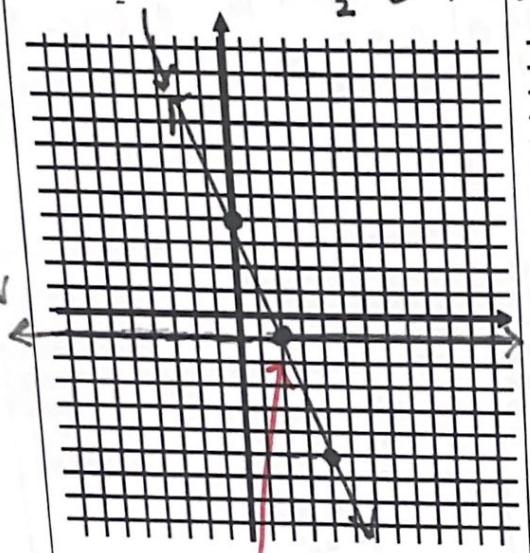
$5\frac{1}{3}$

Level 2 ; I can solve a system of equations by graphing (correct scales and labels).

1) Solve the system of equations by graphing.

$y = -1$

$y = -\frac{5}{2}x + 4$ $m = -\frac{5}{2}$ $b = 4$

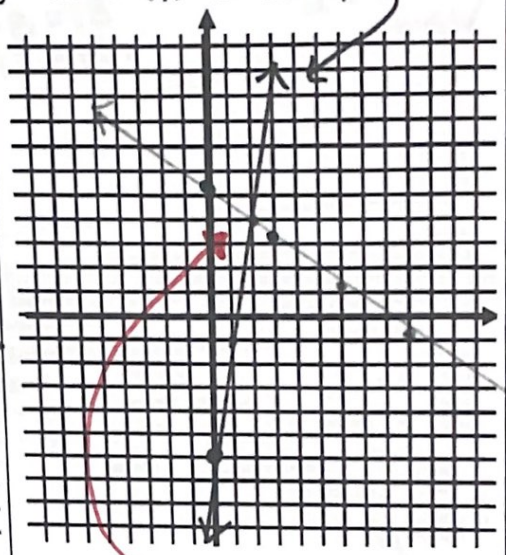


Solution: (2, -1)

2) Solve the system of equations by graphing.

$2x + 3y = 16$

$y = 5x - 6$ $m = 5$ $b = -6$



Solution: (2, 4)

Graphing not as precise to determine solution

Level 2 I can solve a system of equations by the substitution method.

3) Solve the system by substitution. Check your answer.

① $y = -3x + 5$

② $5x - 4y = -3$

② $5x - 4(-3x + 5) = -3$

$5x + 12x - 20 = -3$

$17x - 20 = -3$

$17x = 17$

$x = 1$

$y = -3(1) + 5 = 2$

(1, 2)

4) Solve the system by substitution. Check your answer.

$-5x - 8y = 13$

$2x - 6y = 4$ → $2x - 6y = 4$

$2x = 4 + 6y$

$x = 2 + 3y$

$-5(2 + 3y) - 8y = 13$

$-10 - 15y - 8y = 13$

$-23y = 23$

$y = -1$

$x = 2 + 3(-1) = 2 - 3 = -1$

(-1, -1)

7) Th-

Solution: (1, 2)

Check:

$y = -3x + 5$

$2 \stackrel{?}{=} -3(1) + 5$

$2 = 2$ ✓

$5x - 4y \stackrel{?}{=} -3$

$5(1) - 4(2) = -3$

$5 - 8 = -3$

$-3 = -3$ ✓

Solution: (-1, -1)

Check:

$-5(-1) - 8(-1) \stackrel{?}{=} 13$

$5 + 8 = 13$

$13 = 13$ ✓

$2(-1) - 6(-1) \stackrel{?}{=} 4$

$-2 + 6 = 4$

$4 = 4$ ✓

Level 2 I can solve a system of equations by the elimination method.

challenge

5) Solve the system by elimination. Check your answer.

$8x + y = -16$

$-3x + y = -5$

$\times(-1)$ →

$-8x - y = 16$

$-3x + y = -5$

$-11x = 11$

$x = -1$

$8(-1) + y = -16$

$-8 + y = -16$

$y = -8$

Solution: (-1, -8)

Check:

$-3(-1) + -8 \stackrel{?}{=} -5$

$3 + -8 = -5$

$-5 = -5$ ✓

$8(-1) + (-8) \stackrel{?}{=} -16$

$-16 = -16$ ✓

6) Solve the system by elimination. Check your answer.

$5x + 4y = -30$

$3x - 9y = -18$

$\times(-3)$ →

$\times(5)$ →

$-15x - 12y = 90$

$15x - 45y = -90$

$-57y = 0$

$y = 0$

$5x + 4(0) = -30$

$5x = -30$

$x = -6$

Solution: (-6, 0)

Check:

$5(-6) + 4(0) \stackrel{?}{=} -30$

$-30 = -30$ ✓

$3(-6) - 9(0) \stackrel{?}{=} -18$

$-18 = -18$ ✓

7) The solution to a system of equations represents a point of intersection.

8) Lines intersect once if they are not parallel or coinciding (same line)

I can determine if there are limitations in a situation and explain them. (parallel, coinciding, no solution)

9) How many solutions does the system of equations have?

$2x - 3y = 5$
$10x - 15y = 9$

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

$-15y = -10x + 9$
$y = \frac{2}{3}x - \frac{9}{15}$

The slopes are the same. $m = \frac{2}{3}$

$-10x + 15y = -25$
$10x - 15y = 9$
$0 = -16$
$0 \neq -16$

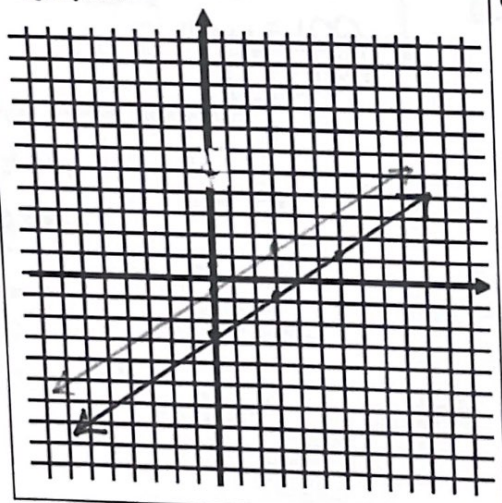
Number of Solutions: ϕ

What does this solution tell you about the lines?

They are parallel

Solve using substitution or elimination:

Gragh system:



10) How many solutions does the system of equations have? ← challenge

$-10x + 2y = 5$
$\frac{2}{3}y = \frac{10}{3}x + \frac{5}{3}$ x(3)
$2y = 10x + 5$

$-10x + 2y = 5$
$-10x + 2y = 5$
same line

Number of Solutions: infinite

What does this solution tell you about the lines?

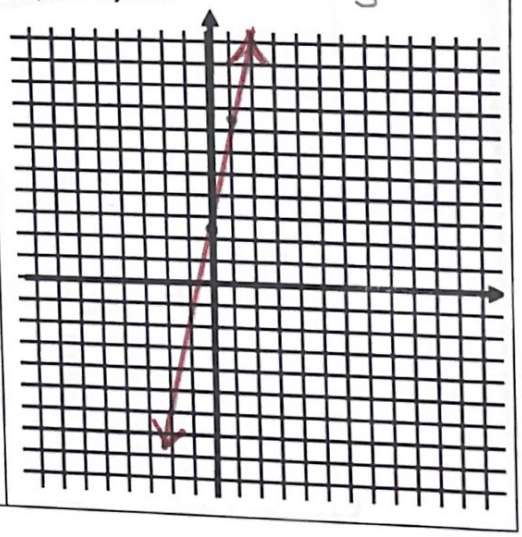
same line

Solve using substitution or elimination:

$-10x + 2y = 5$ x(-1)
$10x - 2y = -5$
$0 = 0$

Graph the system:

$2y = 10x + 5$
$y = 5x + 5/2$



Name: _____ Date: _____ Period: _____

ALGEBRA 1 - UNIT 4 Review

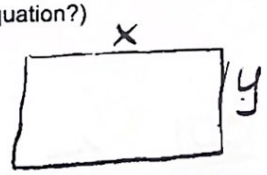
SHOW YOUR WORK Level 2 Level 3

: I can create a system of equations with two variables and use them

11) The perimeter of a rectangular wooden deck is 90 feet. The deck's length, l, is 5 feet less than 4 times its width, w. Which system of linear equations can be used to determine the dimensions, in feet, of the wooden deck?

a) Write "Let" statements. (What does x and y represent in the equation?)

x: length of deck
y: width of deck



b) Write a system of equations.

① $x + y + x + y = 90$ → $2x + 2y = 90$

② $x = 4y - 5$

c) Solve the system of equations.

$2(4y-5) + 2y = 90$
$8y - 10 + 2y = 90$
$10y - 10 = 90$
$10y = 100$
$y = 10$

$x = 4(10) - 5$
$= 40 - 5$
$x = 35$

d) What is the length and width of the deck?

y: width is 10 ft
x: length is 35 ft

e) Check your answer.

$2(35) + 2(10) \stackrel{?}{=} 90$
$70 + 20$
$90 = 90$ ✓

$35 \stackrel{?}{=} 4(10) - 5$
$= 40 - 5$
$35 = 35$ ✓

b m

12) Two cable companies are running specials. One cable television provider has a $60 setup fee and $80 per month, and the second has a $160 equipment fee and $70 per month.

b m

a) Write "Let" statements. (What does x and y represent in the equation?)

x: number of months

y: total cost

b) Write a system of equations.

$y = 80x + 60$

$y = 70x + 160$

c) Solve the system of equations.

$70x + 160 = 80x + 60$

$-70x \quad -70x$

$160 = 10x + 60$

$-60 \quad -60$

$100 = 10x$

$\frac{100}{10} = \frac{10x}{10}$

$x = 10$

$y = 80(10) + 60$

$= 800 + 60$

$y = 860$

d) In how many months will the cost be the same? What will that cost be.

10 months

$860

e) Check your answer.

$860 = 80(10) + 60$

$860 = 860$ ✓

$860 = 70(10) + 160$

$= 700 + 160$

$860 = 860$ ✓