7.1 - 7.4

GALG 1
Ch 7 Review

Name: KEY
Date:_____ Block:_____

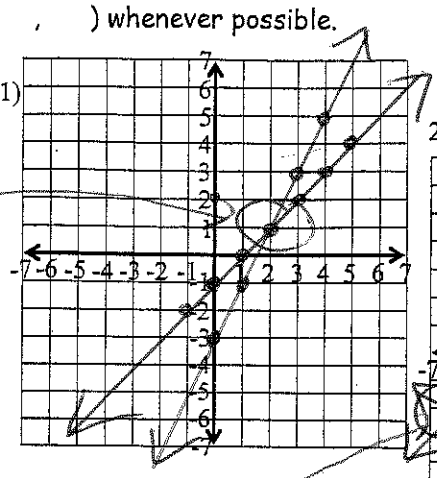
Solve by graphing. State point of intersection (,) whenever possible.

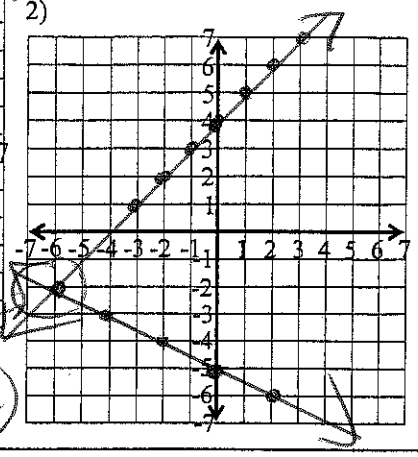
1) $y = 2x - 3$ m = 2 y-int (0, -3) (B)
$y = x - 1$ m = 1 y-int (0, -1)

SOLUTION = (2, 1)

Hint: Put equations in slope intercept form first.

2) $y = x + 4$ m = 1 y-int (0, 4) (B)
$2y = -x - 10$
$\frac{2y}{2} = \frac{-x}{2} - \frac{10}{2}$
$y = -\frac{1}{2}x - 5$ m = $-\frac{1}{2}$ y-int (0, -5)





SOLUTION (-6, -2)

Solve each system by using substitution. Show all work.

3) Type 1
$y = x - 5$
$y = 3x - 10$

$x - 5 = 3x - 10$
$-x \quad -x$
$-5 = 2x - 10$
$+10 \quad +10$
$\frac{5}{2} = \frac{2x}{2}$
$x = 2.5$

$y = x - 5$
$y = 2.5 - 5$
$y = -2.5$

(2.5, -2.5)

4) Type 2
$x - 2y = 2$
$y = 2x - 4$

$x - 2(2x - 4) = 2$
$x - 4x + 8 = 2$
$-3x + 8 = 2$
$-8 \quad -8$
$\frac{-3x}{-3} = \frac{-6}{-3}$
$x = 2$

$y = 2x - 4$
$y = 2(2) - 4$
$y = 0$

(2, 0)

5) Type 2
$2x - 8y = 14$
$x = -3y + 7$

$2(-3y + 7) - 8y = 14$
$-6y + 14 - 8y = 14$
$-14y + 14 = 14$
$-14 \quad -14$
$\frac{-14y}{-14} = \frac{0}{-14}$
$y = 0$

$x = -3y + 7$
$x = -3(0) + 7$
$x = 7$

(7, 0)

Solve each system by using elimination. Show all work.

6) Type 3
$2x - y = 5$ ·2
$x + 2y = 25$

$4x - 2y = 10$
$x + 2y = 25$
$\frac{5x}{5} = \frac{35}{5}$
$x = 7$

$x + 2y = 25$
$7 + 2y = 25$
$-7 \quad -7$
$\frac{2y}{2} = \frac{18}{2}$
$y = 9$

(7, 9)

7) Type 4
$3x - 4y = -18$ ·6
$5x + 6y = 8$ ·4

$18x - 24y = -108$
$+20x + 24y = 32$
$\frac{38x}{38} = \frac{-76}{38}$
$x = -2$

$5x + 6y = 8$
$5(-2) + 6y = 8$
$-10 + 6y = 8$
$+10 \quad +10$
$\frac{6y}{6} = \frac{18}{6}$
$y = 3$

(-2, 3)

8) $x + 4y = 9$
$x - 4y = 7$

Type 1

$\frac{2x}{2} = \frac{16}{2}$

$x = 8$

$x + 4y = 9$

$8 + 4y = 9$

$-8 \quad -8$

$\frac{4y}{4} = \frac{1}{4}$

$y = \frac{1}{4}$

$(8, \frac{1}{4})$

9) $x + 6y = 8$ (-2)
$2x + 4y = 10$

Type 3

$-2x - 12y = -16$

$2x + 4y = 10$

$\frac{-8y}{-8} = \frac{-16}{-8}$

$y = 2$

$x + 6y = 8$

$x + 6(2) = 8$

$x + 12 = 8$

$-12 \quad -12$

$x = -4$

$(-4, 2)$

10) Decide if there is one, none, or infinitely many solutions.

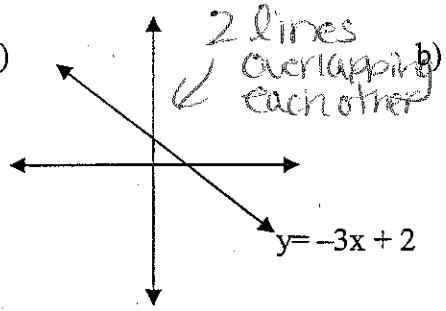
a) $y = 3x - 2$ $m = 3$ $B = -2$
$y = 5x - 1$ $m = 5$ $B = -1$
*Different Slopes (m), So One Solution

b) $y = -3x + 1$ $m = -3$ $B = 1$
$y = -3x - 1$ $m = -3$ $B = -1$
*Same Slopes (m), but different y-int (b), So NO SOLUTION (Parallel Lines)

c) $y = -x + 5$ $m = -1$ $B = 5$
$\frac{2y}{2} = \frac{-2x}{2} + \frac{10}{2}$
$y = -x + 5$ $m = -1$ $B = 5$
*Same Slopes (m) and y-intercepts (B), So (Same Line) Infinitely Many Solutions

11) State whether each system has one, none or infinitely many solutions.

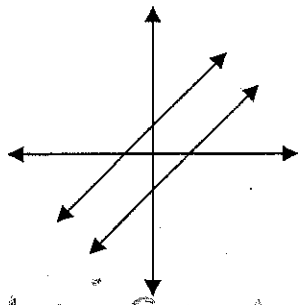
a)



2 lines overlapping each other

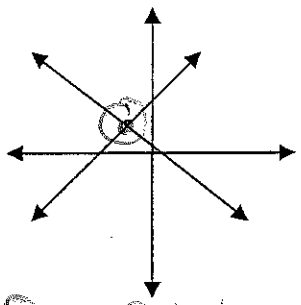
Infinitely Many Solutions

b)



No Solution
*Parallel Lines

c)



One Solution - Cross at One point

For each problem below, define the variables and set up the equations only!! **DO NOT SOLVE!!**

12) A car makes a trip of 435 miles in 8 hours. The car's average speed for the first part of the trip was 50 mph. For the rest of the trip, the average speed was 60 mph. Find the times in hours the car traveled at each rate.

Let = _____

Let = _____

SKIP

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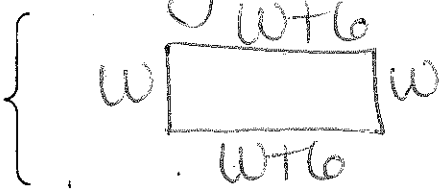
13) The length of a rectangle is 6 feet more than the width. The perimeter is 100 feet. Find the length and width of the rectangle.

Let = width = w

Let = length = w + 6



$2w + 2(w+6) = 100$

$2w + 2w + 12 = 100$

$4w + 12 = 100$

$-12 \quad -12$

$4w = 88$

$\frac{4w}{4} = \frac{88}{4}$

$w = 22$ feet

length $= w + 6$

$= 22 + 6$

$= 28$ feet

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14) Cameron invested $20,000 in two funds. One fund paid 5% and the other paid 7% annual interest. If the total annual interest from the funds was $620, how much was invested in each fund?

Let = _____

Let = _____

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15) A sporting goods store sells right-handed and left-handed baseball gloves. In one month, 12 gloves were sold for total revenue of $561. Right-handed gloves cost $45 and left-handed baseball gloves cost $52. How many of each type of glove did they sell?

Let R = Right-handed gloves

Let l = left-handed gloves

$-45\left(\begin{cases} R + l = 12 & \leftarrow (\#\text{ of Gloves sold}) \\ 45R + 52l = 561 & \leftarrow (\$) \end{cases}\right.$

Elimination Method:

$-45R - 45l = -540$

$45R + 52l = 561$

$7l = 21$

$l = 3$

$R + l = 12$

$R + 3 = 12$

$R = 9$

3 left-handed gloves

9 right-handed gloves

For the problem below, define the variables, set up the equations and then solve.

16) You need to choose between 2 bands for the dance. Band A charges \$500 plus \$0.75 for each ticket sold and Band B charges \$350 plus \$1.25 for each ticket sold. For how many tickets sold will the 2 bands cost be the same ? What is the cost? Break Even Problem

Let t = #of tickets

Let = _____

Band A $500 + .75t$

Band B $350 + 1.25t$

$500 + .75t = 350 + 1.25t$

$-350 \quad -350$

$150 + .75t = 1.25t$

$-.75t \quad -.75t$

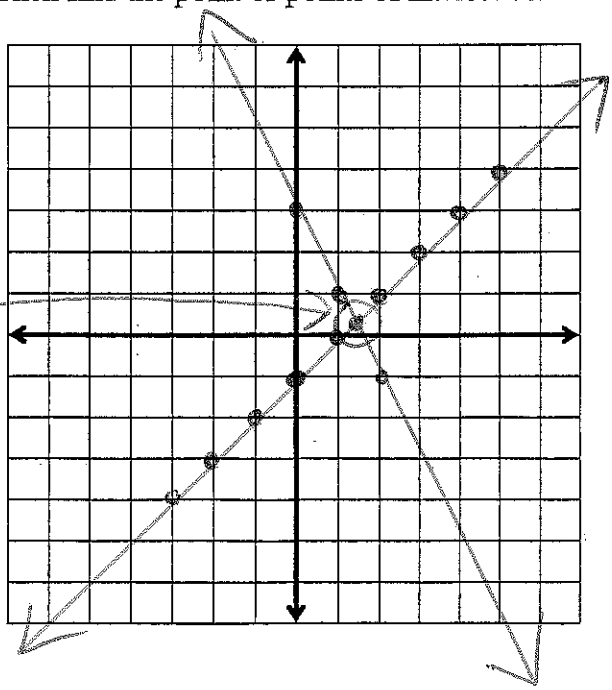
$\frac{150}{.5} = \frac{.5t}{.5}$

$t = 300$ tickets

17) Given the two functions, sketch and label their graphs. Then find the point or points of intersection.

$y = x - 1$ $m=1$ $B=-1$

$y = -2x + 3$ $m=-2$ $B=3$



SOLUTION