Name:_____   Block:___
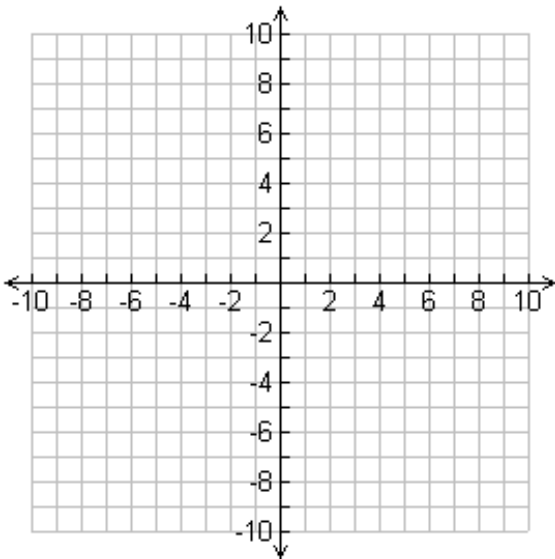
Quiz: Unit4.
Systems of equations.

Practice

There are 7 questions in this quiz, each of equal value.
Standard time for the quiz is 30 minutes .
Four operations calculator is allowed.

Question 1:
For each of the following, complete the missing elements as needed (including the graph).
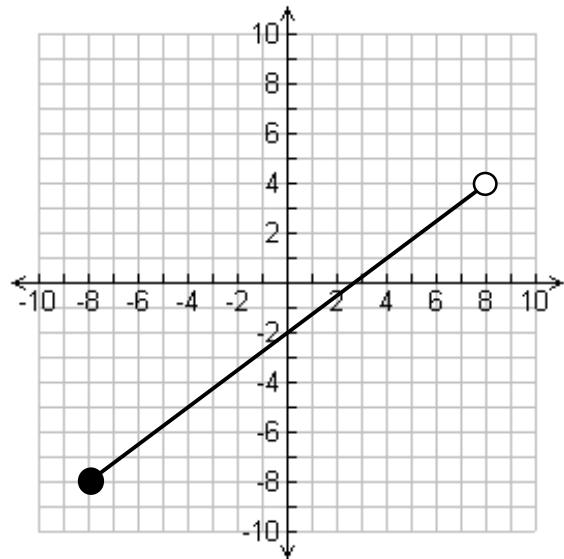
a.

Function: $2y + x = 4$

Domain: $[-4,8)$

Range:_____

b.

Function: _____

Domain: _____

Range:_____

Question 2:

a. Solve algebraically:	b. Solve algebraically:
$$\begin{cases} 3x + 2y = 10 \\ x + y = 3 \end{cases}$$	$$\begin{cases} 3x + 2y = 10 \\ 6x + 4y = 20 \end{cases}$$

Question 3:

a. Solve:	b. Solve:
$$\begin{cases} 2x + 3y = 10 \\ 4x + 6y = 3 \end{cases}$$	$$\begin{cases} 2x = 10 - 3y \\ 4x + 2y = 4 \end{cases}$$

Question 4:

a. Given the line $x + 2y = 14$,   find the perpendicular line that goes through the point (0,2).

b. Find the intersection point of these two lines.

Question 5:

a) Word problem I
The freshmen class at Kehillah is having a fundraiser. On the first day, they sold 6 'we carry your backpack' packages and 4 'we bring you lunch' packages, for a total of $80. On the second day, after being featured on the announcements, they sold 10 of each, for a total of $150. How much each package costs?

b) word problem II
Rowing up the river, the crew took 1.5 hours to cover the distance from the lake to the bridge. Rowing down stream, the crew took only 1 hour to cover the same distance. If the distance is 12Miles, how fast is the crew rowing?

Question 6:
a) Mixtures: You have 50 ounces of a 25% saline solution (a mixture of water and salt). How many ounces of a 10% saline solution must you add to make a new solution that is 15% saline?
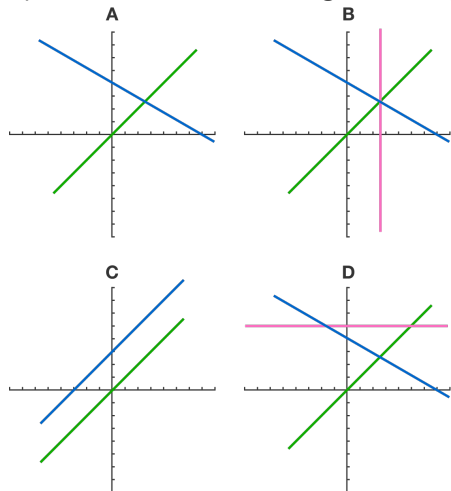(Hint 1: Make a table and solve)
(Hint 2: https://tinyurl.com/z-mixture-video)

b) Mixtures: 9 lbs. of mixed nuts containing 55% peanuts were mixed with 6 lbs. of another kind of mixed nuts that contain 40% peanuts. What percent of the new mixture is peanuts?
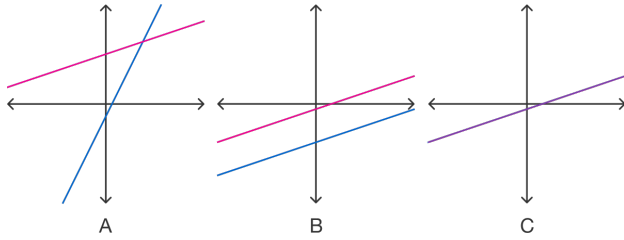
Question 7:

a) Which of the following could represent a system of equations with no solutions?

b) Which graph shows the solution set for this system of equations?

$$\begin{cases} 3x - 4y = 6 \\ -9x + 12y = -18 \end{cases}$$

A

B

C

c) The graphs of which set of equations will never intersect?
   i. $3x + y = 6$ and $3x - y = 6$
   ii. $x + 2y = 5$ and $x + 2y = 7$
   iii. $2x - y = 4$ and $2x - 2y = 4$

d) Use Cramer's rule to solve the following equations:

$$\begin{cases} 1.2x - 3.2y = 6 \\ 2.3x + \dfrac{1}{3}y = -18 \end{cases}$$

Carmer's rule:

$$\begin{cases} aX + bY = c \\ dX + eY = f \end{cases} \quad \rightarrow \quad X = \frac{ce-bf}{ae-bd} \quad , \quad Y = \frac{af-cd}{ae-bd}$$

e) given the following definitions:

$$f(x) = 4 - 2x \quad , \quad g(x) = x - 3$$

Find:

i) $g(f(1))$

ii) $f(g(x))$

iii) $f(g(2))$

iv) $g(f(2))$

=== End ====