

Assignment: Linear Systems

KU /14 A /12 PS 1 2 3 4 C 1 2 3 4

Part A—Multiple Choice

1. Select the equation that shows $3x - 4y = 12$ in the form $y = mx + b$.

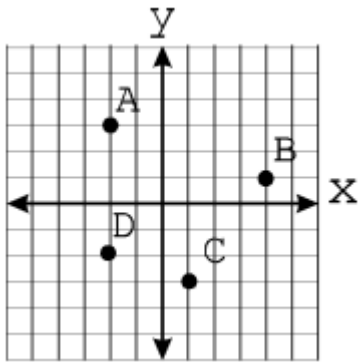
- (a) $y = \frac{3}{4}x - 3$ (b) $y = -\frac{3}{4}x + 3$ (c) $y = -\frac{4}{3}x + 3$ (d) $y = -\frac{3}{4}x - 3$

[/1]

2. Draw the following lines and select the point whose ordered pair is a solution. **Use a ruler.**

One line has a slope of -2 and the y -intercept is -1 .

The other line has a slope of $-\frac{1}{2}$ and the y -intercept is 2 .



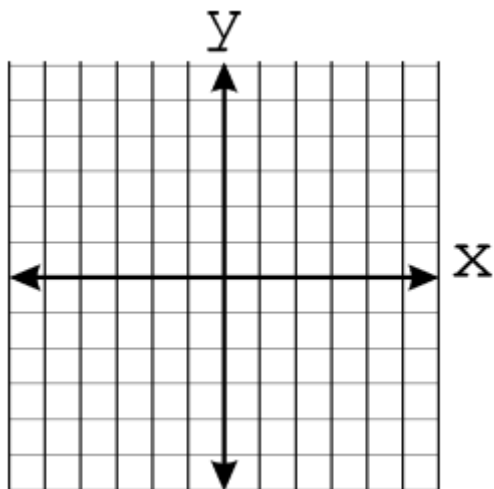
- (a) A (b) B (c) C (d) D

[/2]

3. Graph the following system of equations. Then, select the solution.

$Y = -x + 2$

$y = 3x + 6$



- (a) $(-3, 1)$
 (b) $(-1, 3)$
 c) $(2, 0)$
 (d) $(1, -3)$

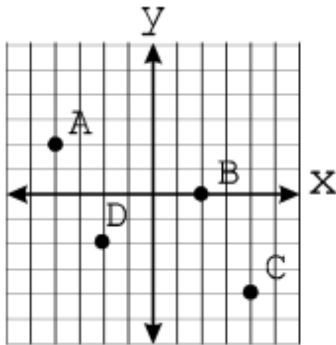
[/3]

4. Draw the following system of equations and select the point whose ordered pair is the solution. **Use a ruler.**

$$y = 2x + 2$$

$$-x + y = 0$$

[/3]



(a) A

(b) B

(c) C

(d) D

5. By performing a 'check', show that $(-1, 5)$ is the point of intersection for the following system of equations.

$$2x - y = -7 \quad (1)$$

$$6x + 3y = 9 \quad (2)$$

[/5]

Part B-Application

Solve each problem on lined paper. Show all steps to each of your solutions.

1. Jim's company manufactures skateboards. The production costs are given by $y = 0.2x + 20$, where x is the number of skateboards manufactured. The revenue is given by $y = 0.35x$. How many skateboards must the company sell to break even?

a) 118

b) 125

c) 134

d) 146

[A /3]

2. Use the process of substitution and select the solution to this system of linear equations.

$$y = 1 - x$$

$$2x + y = 4$$

a) (3, 2)

b) (2, 3)

c) (3, -2)

d) (-3, -2)

[A /4]

3. Use the process of substitution to solve this system of linear equations. Round your answers to one decimal place.

$$y = 4x - 18$$

$$2x + 3y = 9$$

Part C-Problem Solving

Answer both problems on lined paper. Show all work to your solutions.

1. A ski lodge can provide rooms for 18 people. The profit for the lodge is \$21.50 for each child and \$35.50 for each adult per day. The lodge makes a profit of \$555.00.

a) Write a system of two equations that represents the information in the problem.

b) Using a method of your choice, determine how many adults and how many children were at the lodge.

2. Create a word problem where the information in the problem can be represented by two, linear equations.

a) Write the equations that the reader would need to use to solve for the point of intersection, POI.

b) Describe the first step the reader would need to take to begin solving your system.

b) Describe the significance of the coordinates of your POI. **NOTE: You do not need to solve your system.**