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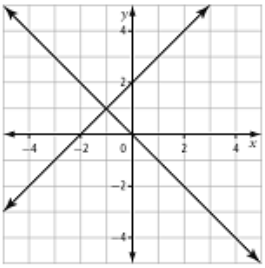
Math 10C: Systems of Linear Equations Assignment

Multiple Choice (10 marks)

____ **1.** What is the solution to this linear system?



a. (1, 1)

b. (1, –1)

c. (–1, 1)

d. (–1, –1)

____ **2.** Which ordered pair is the solution to the following linear system?
$3x + y = 5$
$x - 2y = 4$

a. (–2, 1)

b. (–1, 2)

c. (1, 2)

d. (2, –1)

____ **3.** Determine the ordered pair that solves the linear system $3(x - 1) - 2y + 6 = 0$ and $3x + 12 - 4(y - 1) - 1 = 0$.

a. (1, 1)

b. (2, –3)

c. (3, 6)

d. (5, 4)

____ **4.** If x and y are determined for the linear system: $x + 2y = 10$ and $x - 2y = 2$, then $x + y$ is equal to

a. 8

b. 12

c. 13

d. 1

*Answer the following **3** questions using the information from the scenario below.*

> ***FunNGames Video*** rents game machines for $10 and video games for $3 each. ***Big Vid*** rents game machines for $7 and video games for $4 each. Let y represent the total rental cost, in dollars, and let x represent the number of games rented.

____ **5.** Determine which system of linear equations represents this situation.

a. FunNGames: $y = -3x + 10$
Big Vid: $y = -4x + 7$

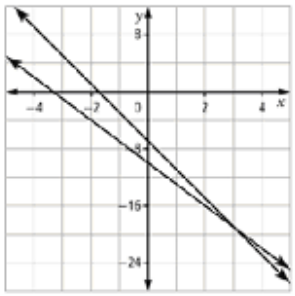
b. FunNGames: $y = 3x + 10$
Big Vid: $y = 4x + 7$

c. FunNGames: $y = 4x + 7$
Big Vid: $y = 3x + 10$

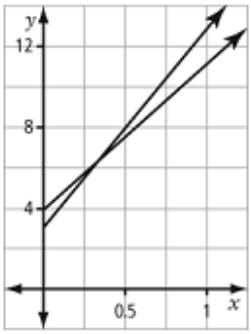
d. FunNGames: $y = 10x + 3$
Big Vid: $y = 7x + 4$

____ **6.** Which system of linear graphs represents this situation?

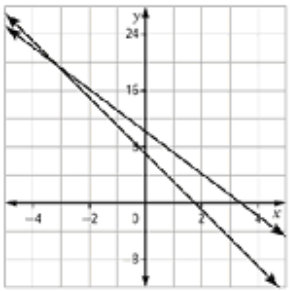
a.



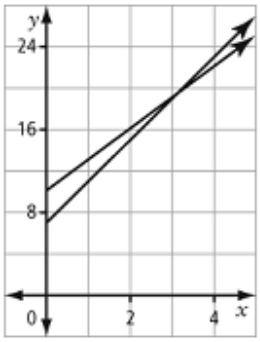
b.



c.



d.



____ **7.** What is the solution?

a. $(-3, 1)$

b. $\left(\frac{1}{3}, \frac{19}{3}\right)$

c. $(3, -19)$

d. $(3, 19)$

____ **8.** If the following system has ***no solution***, what must the value of a be?

$y = -3x + 6$
$y = ax + 10$

a. $-\frac{1}{3}$

b. 3

c. -3

d. $\frac{1}{3}$

____ **9.** When solving the system of equations

$x - 2y = 7$

$y + x = 1$

by method of substitution, what should be substituted for x (from the first equation) into the second equation?

a. $2y - 7$

b. $-2y - 7$

c. $2y + 7$

d. $-2y + 7$

____ **10.** When solving the systems of equations

$3x + 2y = 18$

$2x + 3y = 17$

using the method of elimination, which of the following would be useful?

a. Multiply equation one by 2
Multiple equation two by 3

b. Multiply equation one by 2
Multiply equation two by 2

c. Multiply equation one by -1
Multiply equation two by 2

d. Multiply equation one by 3
Multiply equation two by -3

Numeric Response (4 marks):

1. When the solution for the following linear system

$2x - 4y = 7$
$4x + y = 5$

is determined, the value of x is _____.

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2. When the solution for the system of linear equations

$y = 9 - x$
$2x + 3y = 11$

is determined, then the value of $x + y$ is _____.

3. Use the following linear system of equations to answer the following question.

$y = 7x - 4$
$2y - 14x = -6$

The number of solutions for this system is _____ .

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4. The value of k, $k \in N$, for which the system of equations

$10x + ky = -8$
$-5x - 2y = 4$

has an infinite number of solutions, is _____.

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Short Answer (6 marks):

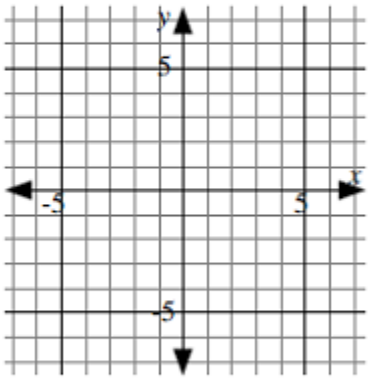
1. Solve each of the following systems using the method indicated. **(4 marks)**

a) substitution: $7x + y = 10$ $3x - 2y = -3$ Solution:	b) elimination: $2x - 4y = 13$ $4x - 5y = 8$ Solution:

2. Graph the following linear system and write the solution from the graph. **(2 marks)**

$-2x + 2y = -4$

$x - 4y = -4$



Solution: _____

Problem (6 marks):

1. Two numbers differ by 18. Twice the larger number is the same as three times the smaller number. Determine the two numbers. Show all the work and verify for full marks. **(3 marks - 0.5 for defining variables, 1 for equations, 1 for solution, 0.5 for verifying)**

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2. A stained glass window has a perimeter of 72 inches. The width is 6 inches less than the length. Determine the width and the length of the stained glass window. Show all the work and verify for full marks. **(3 marks - 0.5 for defining variables, 1 for equations, 1 for solution, 0.5 for verifying)**