

Knowledge	Thinking	Application	Communication
/12	/8	/10	/10

Total /38

Name:

Date:

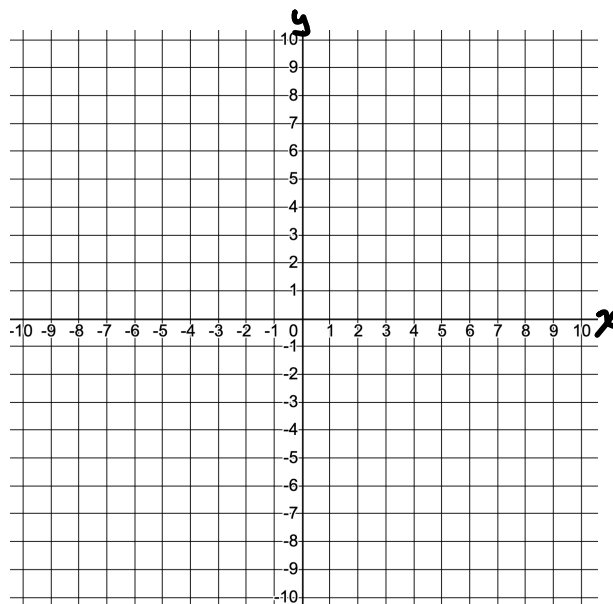
MPM2D Test

Unit 1 - Linear Systems

1) Solve each linear system using the method of GRAPHING [6]

$$l_1: 4x + 5y = -15$$

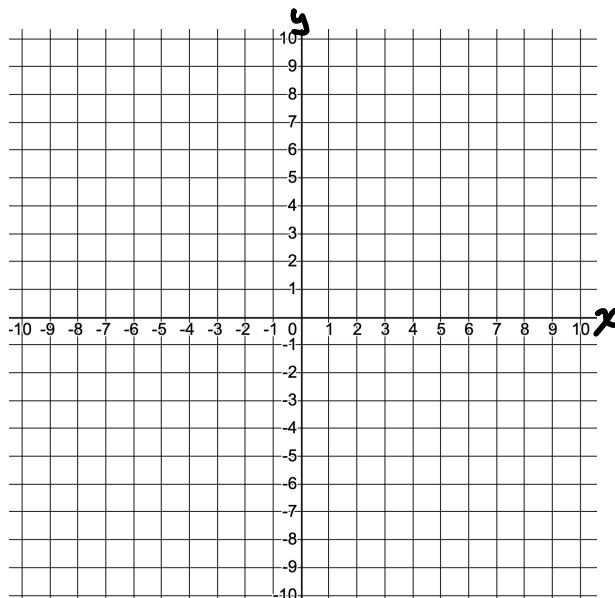
$$l_2: y = \frac{4}{5}x - 3$$



Solution:

b) $l_1: y = -x - 2$

$$l_2: 3y - 2x - 9 = 0$$



Solution:

2) Solve each linear system using the method of SUBSTITUTION [9]

a) $l_1: y = -6x$
 $l_2: y = -2x + 8$

Solution:

b) $l_1: 7x + 10y = 36$
 $l_2: -2x + y = 9$

Solution:

c) $l_1: x - 3y = 6$
 $l_2: 3x = 18 + 9y$

Solution:

3) Solve each linear system using the method of ELIMINATION [9]

a) $\ell_1: 3x + 4y = 4$
 $\ell_2: -2x - 4y = 8$

Solution:

b) $\ell_1: 3x + 5y = 1$
 $\ell_2: 4x + y = 7$

Solution:

c) $\ell_1: 2x - 5y = 2$
 $\ell_2: -5x = -3y + 2$

Solution:

4) What are the different possibilities for the number of solutions to a linear system. Explain each scenario and provide a diagram. [3]

5) Analyze the solution to the linear system given. The method of substitution was used. Is it correct? If so, how does the check prove that. Is it wrong? What was done wrong and is there a problem with the check? [2]

$$\ell_1: y = 3x - 2$$
$$\ell_2: 4x - y = -5$$

$$\ell_1: y = 3x - 2$$

Sub $x = -3$ into ℓ_1

$$y = 3(-3) - 2$$

$$y = -9 - 2$$

$$y = -11$$

$$\ell_2: 4x - y = -5$$

Sub $y = 3x - 2$ into ℓ_2

$$4x - 3x - 2 = -5$$

$$x - 2 = -5$$

$$x = -5 + 2$$

$$x = -3$$

Check Solution $x = -3, y = -11$

LS

$$= y$$
$$= -11$$

RS

$$= 3x - 2$$
$$= 3(-3) - 2$$
$$= -11$$

$LS = RS$ therefore, it is the correct solution

6) Answer 3 of the following 4 word problems. You must show an algebraic solution where you model the scenario with a linear system. [9]

a) George has invested \$2000 in two accounts. After one year, one account earned 4.5% of its value and the other account lost 2% of its value. Fortunately, he still had a net gain of \$38. How much money was invested in each account?

b) Martha mixes cream that is 10% fat with cream that is 2% fat to make 30 mL of cream that is 5% fat for her morning coffee. How many mL of each type of creamer does she mix together?

c) A canoe makes a round trip from camp site A to B, which are 10 km apart. The upstream trip takes 40 minutes and the downstream trip takes 25 minutes. What is the speed of the canoe in still water and what is the speed of the water current?

d) A bag contains 1234 coins. All of the coins are either quarters or dimes. The total value of the coins is \$290.05. How many of each type of coin are there?

Choice 1:

Choice 2:

Choice 3: