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DATE

PERIOD

Assessment

Linear Equations and Linear Systems: End-of-Unit Assessment

You may use graph paper and a four-function or scientific calculator, but not a graphing calculator.

1. Here is a balanced hanger diagram:

A circle has a mass of 3 grams and a square has a mass of 2 grams. Which is the mass of a triangle?



2. Select **all** the systems of equations that have exactly one solution.

a.
$$\begin{cases} y = 3x + 1\\ y = -3x + 7 \end{cases}$$

b.
$$\begin{cases} y = 3x + 1\\ y = x + 1 \end{cases}$$

c.
$$\begin{cases} y = 3x + 1\\ y = 3x + 7 \end{cases}$$

d.
$$\begin{cases} x + y = 10\\ 2x + 2y = 20 \end{cases}$$

e.
$$\begin{cases} x + y = 10\\ x + y = 12 \end{cases}$$



NAME

DATE

PERIOD

3. Here is the graph for one of the equations in a system of two equations.



The solution to the system is (6,2). Select **all** the equations that could be the other equation in the system.

- a. y = -3xb. $y = \frac{-3}{2}x + 6$ c. $y = \frac{-1}{6}x + 3$ d. $y = \frac{2}{3}x - 1$ e. $y = \frac{1}{2}x - 1$ f. y = 4x - 2
- 4. Solve this equation. Explain or show your reasoning.

$$\frac{1}{2}x - 7 = \frac{1}{3}(x - 12)$$



NAME

DATE

PERIOD

5. Solve this system of equations.

$$\begin{cases} 3x + 4y = 36\\ y = -\frac{1}{2}x + 8 \end{cases}$$

- 6. Andre and Elena are each saving money. Andre starts with \$100 in his savings account and adds \$5 per week. Elena starts with \$10 in her savings account and adds \$20 each week.
 - a. After four weeks, who has more money in their savings account? Explain how you know.

b. After how many weeks will Andre and Elena have the same amount of money in their savings accounts?



NAME	DATE	PERIOD

- 7. 60 people attend a game night. Everyone chooses to play chess, a two-player game, or cribbage, a four-player game. All 60 people are playing either chess or cribbage.
 - a. Complete this table showing some possible combinations of the number of each type of game being played:

chess games (x)	cribbage games (y)
	8
12	
	15
2	

b. There are 3 more games of cribbage being played than games of chess being played. How many of each game are being played? Explain or show your reasoning.

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