

### A.REI.C.5 Solving Linear Systems 1b

- 1 Which system of equations has the same solution as the system below?

$$2x + 2y = 16$$

$$3x - y = 4$$

1)  $2x + 2y = 16$

$$6x - 2y = 4$$

2)  $2x + 2y = 16$

$$6x - 2y = 8$$

3)  $x + y = 16$

$$3x - y = 4$$

4)  $6x + 6y = 48$

$$6x + 2y = 8$$

- 2 Which pair of equations could *not* be used to solve the following equations for  $x$  and  $y$ ?

$$4x + 2y = 22$$

$$-2x + 2y = -8$$

1)  $4x + 2y = 22$

$$2x - 2y = 8$$

2)  $4x + 2y = 22$

$$-4x + 4y = -16$$

3)  $12x + 6y = 66$

$$6x - 6y = 24$$

4)  $8x + 4y = 44$

$$-8x + 8y = -8$$

- 3 Which system of equations does *not* have the same solution as the system below?

$$4x + 3y = 10$$

$$-6x - 5y = -16$$

1)  $-12x - 9y = -30$

$$12x + 10y = 32$$

2)  $20x + 15y = 50$

$$-18x - 15y = -48$$

3)  $24x + 18y = 60$

$$-24x - 20y = -64$$

4)  $40x + 30y = 100$

$$36x + 30y = -96$$

- 4 A system of equations is given below.

$$x + 2y = 5$$

$$2x + y = 4$$

Which system of equations does *not* have the same solution?

1)  $3x + 6y = 15$

$$2x + y = 4$$

2)  $4x + 8y = 20$

$$2x + y = 4$$

3)  $x + 2y = 5$

$$6x + 3y = 12$$

4)  $x + 2y = 5$

$$4x + 2y = 12$$

- 5 A system of equations is shown below.  
Equation  $A$ :  $5x + 9y = 12$   
Equation  $B$ :  $4x - 3y = 8$
- Which method eliminates one of the variables?
- 1) Multiply equation  $A$  by  $-\frac{1}{3}$  and add the result to equation  $B$ .
  - 2) Multiply equation  $B$  by 3 and add the result to equation  $A$ .
  - 3) Multiply equation  $A$  by 2 and equation  $B$  by  $-6$  and add the results together.
  - 4) Multiply equation  $B$  by 5 and equation  $A$  by 4 and add the results together.

- 6 What is the value of the  $y$ -coordinate of the solution to the system of equations  $2x + y = 8$  and  $x - 3y = -3$ ?

- 7 What is the solution of the system of equations below?

$$2x + 3y = 7$$
$$x + y = 3$$

- 8 What is the value of  $A$  in the following system of equations?

$$2A + 3W = 12$$
$$6A - 5W = 8$$

- 9 The equations  $6x + 5y = 300$  and  $3x + 7y = 285$  represent the money collected from selling gift baskets in a school fundraising event. If  $x$  represents the cost for each snack gift basket and  $y$  represents the cost for each chocolate gift basket, what is the cost for each chocolate gift basket?

- 10 Solve the following system of equations algebraically:

$$3x + 2y = 4$$

$$4x + 3y = 7$$

[Only an algebraic solution can receive full credit.]

- 11 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$	$8x + 9y = 48$
$12x + 5y = 21$	$-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

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### Answer Section

1 ANS: 2  
 $2(3x - y = 4)$   
 $6x - 2y = 8$

REF: 061414ai

2 ANS: 4 REF: 011621ai

3 ANS: 4  
 $36x + 30y = 96$

REF: 081724ai

4 ANS: 4 REF: 081622ai

5 ANS: 2 REF: 011815ai

6 ANS:  
 2  
 $2(x - 3y = -3)$   
 $2x + y = 8$   
 $2x - 6y = -6$   
 $7y = 14$   
 $y = 2$

REF: 081021ia

7 ANS:  
 $(2, 1)$   
 $2x + 3y = 7$   
 $3x + 3y = 9$   
 $x = 2$

REF: 011410ia

8 ANS:  
 3  
 $10A + 15W = 60$   
 $18A - 15W = 24$   
 $28A = 84$   
 $A = 3$

REF: 061609ia

9 ANS:

\$30

$$6x + 5y = 300$$

$$6x + 14y = 570$$

$$9y = 270$$

$$y = 30$$

REF: 011519ia

10 ANS:

$$(-2, 5). \quad 3x + 2y = 4 \quad 12x + 8y = 16. \quad 3x + 2y = 4$$

$$4x + 3y = 7 \quad 12x + 9y = 21 \quad 3x + 2(5) = 4$$

$$y = 5 \quad 3x = -6$$

$$x = -2$$

REF: 010937ia

11 ANS:

$$24x + 27y = 144 \quad -8.5y = -51 \quad \text{Agree, as both systems have the same solution.}$$

$$24x + 10y = 42 \quad y = 6$$

$$17y = 102 \quad 8x + 9(6) = 48$$

$$y = 6 \quad 8x = -6$$

$$8x + 9(6) = 48 \quad x = -\frac{3}{4}$$

$$8x = -6$$

$$x = -\frac{3}{4}$$

REF: 061533ai