

A.REI.C.5 Solving Linear Systems 1a

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

$$2x + 2y = 16$$

$$2(3x - y = 4)$$

1) $2x + 2y = 16$

$6x - 2y = 4$

2) $2x + 2y = 16$

$6x - 2y = 8$

3) $x + y = 16$

$3x - y = 4$

4) $6x + 6y = 48$

$6x + 2y = 8$

$6x - 2y = 8$

- 3 A system of equations is given below.

$$x + 2y = 5$$

$$2x + y = 4$$

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

1) $3x + 6y = 15$

$3(x + 2y = 5) \checkmark$

$2x + y = 4$

2) $4x + 8y = 20$

$4(x + 2y = 5) \checkmark$

$2x + y = 4$

3) $x + 2y = 5$

$6x + 3y = 12$

$3(2x + y = 4)$

4) $x + 2y = 5$

$4x + 2y = 12$

$2(2x + y = 4)$

- 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) $8x + 4y = 44$

$-8x + 8y = -8$

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

1) -2

2) 2

3) 3

4) -3

$$\begin{array}{r} 3(2x + y = 8) \rightarrow 6x + 3y = 24 \\ x - 3y = -3 \\ \hline 7x = 21 \\ x = 3 \end{array}$$

$$\begin{array}{r} 2(3) + y = 8 \\ 6 + y = 8 \\ -6 \quad -6 \\ \hline y = 2 \end{array} \quad X = 3$$

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

$$2x + 3y = 7$$

$$\begin{array}{r} 2x + 3y = 7 \\ -2(x + y = 3) \rightarrow -2x - 2y = -6 \\ \hline y = 1 \end{array}$$

1) $(1, 2)$

2) $(2, 1)$

3) $(4, -1)$

4) $(4, 1)$

$$\begin{array}{r} x + y = 3 \\ -1 \quad -1 \\ \hline x = 2 \end{array}$$

6 What is the value of A in the following system of equations?

- 1) 1
- 2) 2
- 3) 3
- 4) 9

$$\begin{array}{r}
 -3(2A + 3W = 12) \rightarrow -6A - 9W = -36 \\
 \underline{6A - 5W = 8} \\
 -14W = -28 \\
 \underline{-14 \quad -14} \\
 W = 2
 \end{array}$$

$$\begin{array}{r}
 2A + 3(2) = 12 \\
 2A + 6 = 12 \\
 \underline{-6 \quad -6} \\
 2A = 6 \\
 \underline{2 \quad 2} \\
 A = 3
 \end{array}$$

7 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?

- 1) \$20
- 2) \$25
- 3) \$30
- 4) \$54

$$\begin{array}{r}
 6x + 5y = 300 \\
 -2(3x + 7y = 285) \\
 \underline{-6x - 14y = -570} \\
 6x + 5y = 300 \\
 \hline
 -9y = -270 \\
 \underline{-9 \quad -9} \\
 y = 30
 \end{array}$$

8 Solve the following system of equations algebraically:

$$\begin{array}{r}
 4(3x + 2y = 4) \rightarrow 12x + 8y = 16 \\
 -3(4x + 3y = 7) \rightarrow \underline{-12x - 9y = -21} \\
 \hline
 -y = -5 \\
 \underline{-1 \quad -1} \\
 y = 5
 \end{array}$$

[Only an algebraic solution can receive full credit.]

Solution $(-2, 5)$

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

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

$$y = 6$$

$$\begin{array}{r}
 3x + 2(5) = 4 \\
 3x + 10 = 4 \\
 \underline{-10 \quad -10} \\
 3x = -6 \\
 \underline{3 \quad 3} \\
 x = -2
 \end{array}$$

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

$$\begin{array}{r}
 x = -0.75 \\
 y = 6
 \end{array}$$

$$\begin{array}{r}
 8(-0.75) + 9(6) = 48 \\
 -6 + 54 = 48 \\
 48 = 48 \checkmark
 \end{array}$$

$$\begin{array}{r}
 12(-0.75) + 5(6) = 21 \\
 -9 + 30 = 21 \\
 21 = 21 \checkmark
 \end{array}$$

$$\begin{array}{r}
 8x + 9(6) = 48 \\
 8x + 54 = 48 \\
 \underline{-54 \quad -54} \\
 8x = -6 \\
 \underline{8 \quad 8} \\
 x = -0.75
 \end{array}$$

I agree b/c they both have $x = -0.75$ $y = 6$ as a solution.