

A.A.10: Solving Linear Systems 1: Solve systems of two linear equations in two variables algebraically

- 1 What is the value of x in the solution of the system of equations $3x + 2y = 12$ and $5x - 2y = 4$?
 - 1) 8
 - 2) 2
 - 3) 3
 - 4) 4
- 2 What is the value of the y -coordinate of the solution to the system of equations $x + 2y = 9$ and $x - y = 3$?
 - 1) 6
 - 2) 2
 - 3) 3
 - 4) 5
- 3 What is the value of the y -coordinate of the solution to the system of equations $x - 2y = 1$ and $x + 4y = 7$?
 - 1) 1
 - 2) -1
 - 3) 3
 - 4) 4
- 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
- 5 What is the solution of the system of equations $2x - 5y = 11$ and $-2x + 3y = -9$?
 - 1) $(-3, -1)$
 - 2) $(-1, 3)$
 - 3) $(3, -1)$
 - 4) $(3, 1)$
- 6 What is the solution of the system of equations below?
$$2x + 3y = 7$$
$$x + y = 3$$
 - 1) $(1, 2)$
 - 2) $(2, 1)$
 - 3) $(4, -1)$
 - 4) $(4, 1)$
- 7 What is the solution of the system of equations $c + 3d = 8$ and $c = 4d - 6$?
 - 1) $c = -14, d = -2$
 - 2) $c = -2, d = 2$
 - 3) $c = 2, d = 2$
 - 4) $c = 14, d = -2$
- 8 What is the solution of the following system of equations? $2a + 3b = 12$
$$a = \frac{1}{2}b - 6$$
 - 1) $a = -6$ and $b = 0$
 - 2) $a = -4.5$ and $b = 3$
 - 3) $a = -3$ and $b = 6$
 - 4) $a = 24$ and $b = 6$

- 9 The equations $5x + 2y = 48$ and $3x + 2y = 32$ represent the money collected from school concert ticket sales during two class periods. If x represents the cost for each adult ticket and y represents the cost for each student ticket, what is the cost for each adult ticket?

1) \$20
2) \$10
3) \$8
4) \$4

- 10 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

- 11 Using the substitution method, Ken solves the following system of equations algebraically.

$$2x - y = 5$$

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

Which equivalent equation could Ken use?

1) $3x + 2(2x - 5) = -3$
2) $3x + 2(5 - 2x) = -3$
3) $3\left(y + \frac{5}{2}\right) + 2y = -3$
4) $3\left(\frac{5}{2} - y\right) + 2y = -3$

- 12 Solve the following system of equations algebraically for y :

$$2x + 2y = 9$$

$$2x - y = 3$$

- 13 Solve the following system of equations algebraically:

$$3x + 2y = 4$$

$$4x + 3y = 7$$

[Only an algebraic solution can receive full credit.]

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Answer Section

1 ANS: 2

$$3x + 2y = 12$$

$$5x - 2y = 4$$

$$8x = 16$$

$$x = 2$$

REF: 061409ia

2 ANS: 2

$$x + 2y = 9$$

$$x - y = 3$$

$$3y = 6$$

$$y = 2$$

REF: 060925ia

3 ANS: 1

$$x - 2y = 1$$

$$x + 4y = 7$$

$$-6y = -6$$

$$y = 1$$

REF: 080920ia

4 ANS: 2

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

$$2x + y = 8$$

$$2x - 6y = -6$$

$$7y = 14$$

$$y = 2$$

REF: 081021ia

5 ANS: 3

$$2x - 5y = 11 \quad 2x - 5(-1) = 11$$

$$-2x + 3y = -9 \quad 2x = 6$$

$$-2y = 2 \quad x = 3$$

$$y = -1$$

REF: 081109ia

6 ANS: 2
 $2x + 3y = 7$
 $3x + 3y = 9$
 $x = 2$

REF: 011410ia

7 ANS: 3
 $c + 3d = 8 \quad c = 4d - 6$
 $4d - 6 + 3d = 8 \quad c = 4(2) - 6$
 $7d = 14 \quad c = 2$
 $d = 2$

REF: 061012ia

8 ANS: 3
 $2\left(\frac{1}{2}b - 6\right) + 3b = 12 \quad 2a + 3(6) = 12$
 $b - 12 + 3b = 12 \quad 2a = -6$
 $4b = 24 \quad a = -3$
 $b = 6$

REF: 061511ia

9 ANS: 3
 $5x + 2y = 48$
 $3x + 2y = 32$
 $2x = 16$
 $x = 8$

REF: fall0708ia

10 ANS: 3
 $6x + 5y = 300$
 $6x + 14y = 570$
 $9y = 270$
 $y = 30$

REF: 011519ia

11 ANS: 1 REF: 081315ia
 12 ANS:
 2. Subtracting the equations: $3y = 6$
 $y = 2$

REF: 061231ia

13 ANS:

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

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

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

$$x = -2$$

REF: 010937ia