

A.A.10: Solving Linear Systems 2: 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 $5x - 2y = 4$?
- 2 What is the value of the y -coordinate of the solution to the system of equations $x + 2y = 9$ and $x - y = 3$?
- 3 What is the value of the y -coordinate of the solution to the system of equations $x - 2y = 1$ and $x + 4y = 7$?
- 4 What is the value of the y -coordinate of the solution to the system of equations $2x + y = 8$ and $x - 3y = -3$?
- 5 What is the solution of the system of equations $2x - 5y = 11$ and $-2x + 3y = -9$?
- 6 What is the solution of the system of equations below?
$$2x + 3y = 7$$
$$x + y = 3$$
- 7 What is the solution of the system of equations $c + 3d = 8$ and $c = 4d - 6$?
- 8 What is the solution of the following system of equations? $2a + 3b = 12$
$$a = \frac{1}{2}b - 6$$
- 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?
- 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?
- 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:

$$(3, -1)$$

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

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

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

$$y = -1$$

REF: 081109ia

6 ANS:

$$(2, 1)$$

$$2x + 3y = 7$$

$$3x + 3y = 9$$

$$x = 2$$

REF: 011410ia

7 ANS:

$$c = 2, d = 2$$

$$c + 3d = 8 \quad c = 4d - 6$$

$$4d - 6 + 3d = 8 \quad c = 4(2) - 6$$

$$7d = 14 \quad c = 2$$

$$d = 2$$

REF: 061012ia

8 ANS:

$$a = -3 \text{ and } b = 6$$

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

$$b - 12 + 3b = 12 \quad 2a = -6$$

$$a = -3$$

$$4b = 24$$

$$b = 6$$

REF: 061511ia

9 ANS:

$$\$8$$

$$5x + 2y = 48$$

$$3x + 2y = 32$$

$$2x = 16$$

$$x = 8$$

REF: fall0708ia

10 ANS:

\$30

$$6x + 5y = 300$$

$$6x + 14y = 570$$

$$9y = 270$$

$$y = 30$$

REF: 011519ia

11 ANS: 1

REF: 081315ia

12 ANS:

2. Subtracting the equations: $3y = 6$

$$y = 2$$

REF: 061231ia

13 ANS:

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

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

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

$$x = -2$$

REF: 010937ia