Algebra 1

8.3 Systems of Equations (Elimination) Answers

Solve each system by elimination.

1) $-4x - 4y = 8$
$-x + 4y = 12$

$-5x = 20$
$x = -4$

$-x + 4y = 12$
$-(-4) + 4y = 12$
$-4 \quad -4$
$4y = 8$
$y = 2$

$(-4, 2)$

2) $3x + 2y = -3$
$-3x + y = 12$

$3y = 9$
$y = 3$

$-3x + y = 12$
$-3x + 3 = 12$
$-3x = 9$
$x = -3$

$(-3, 3)$

3) $x - 2y = -9$ $\times -1$
$-4x - 2y = -4$

$-x + 2y = 9$
$-5x = 5$
$x = -1$

$(-1, 4)$

$x - 2y = -9$
$-1 - 2y = -9$
$-2y = -8$
$y = 4$

4) $-2x + y = 4$ $\times -1$
$-2x + 2y = 0$

$2x - y = -4$
$y = -4$

$(-4, -4)$

$-2x + y = 4$
$-2x + (-4) = 4$
$-2x = 8$
$x = -4$

5) $-4x - y = 8$ $\times 3$
$-12x + 3y = -24$

$-12x - 3y = 24$
$-24x = 0$
$x = 0$

$(0, -8)$

$4x - y = 8$
$4(0) - y = 8$
$-y = 8$
$y = -8$

6) $-x + 4y = -1$ $\times 2$
$-2x - 8y = 14$

$-2x + 8y = -2$
$-4x = 12$
$x = -3$

$(-3, -1)$

$-x + 4y = -1$
$3 + 4y = -1$
$4y = -4$
$y = -1$

7) $-6x + 3y = 3$
$5x - 8y = -8$

$-30x + 15y = 15$
$30x - 48y = -48$
$-33y = -33$
$y = 1$
$(0, 1)$

$-6x + 3y = -3$
$-6x + 3 = 3$
$-6x = 0$
$x = 0$

8) $4x - 3y = -16$
$5x + 2y = 3$

$8x - 6y = -32$
$15x + 6y = 9$
$23x = -23$
$x = -1$
$(-1, 4)$

$4x - 3y = -16$
$4(-1) - 3y = -16$
$-4 - 3y = -16$
$+4 \quad +4$
$-3y = -12$
$y = 4$

9) $3x + 2y = 10$
$4x + 5y = 18$

$-12x - 8y = -40$
$12x + 15y = 54$
$7y = 14$
$y = 2$
$(2, 2)$

$3x + 2y = 10$
$3x + 2(2) = 10$
$3x = 6$
$x = 2$

10) $-5x - 6y = -3$
$2x + 4y = 6$

$-10x - 12y = -6$
$6x + 12y = 18$
$-4x = 12$
$x = -3$
$(-3, 3)$

$2x + 4y = 6$
$2(-3) + 4y = 6$
$-6 + 4y = 6$
$4y = 12$
$y = 3$

11) Is the point (0, 0) a solution of the system of linear equations below?

$2x + y = 2$
$4x - 2y = 2$

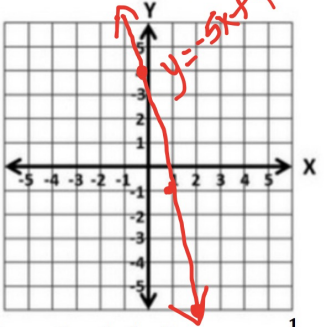
$2(0) + 0 = 2$
$0 = 2$?
No!

12) Is the point $(\frac{5}{4}, 7)$ a solution of the system of linear equations below?

$4x + y = 12$
$-4x + 3y = 16$

$4(\frac{5}{4}) + 7 = 12$
$5 + 7 = 12$
$12 = 12$

$-4(\frac{5}{4}) + 3(7) = 16$
$-5 + 21 = 16$
$16 = 16$
yes!

Solve for x.	Evaluate if x = - 1	Graph and label each line.
1. $-12x = 3(x - 2)$ $-12x = 3x - 6$ $-15x = -6$ $x = \frac{2}{5}$	3. $2x^3 - 3x$ $2(-1)^3 - 3(-1)$ $-2 + 3$ $= 1$	5. Graph the line $y = -5x + 4$  6. Graph the line $y = -\frac{1}{2}x + 2$
2. $-28 = -1 - \frac{x}{4}$	4. $6 - 5x^4$	