

Is $(-3, -6)$ the solution to the following system?

$$-4x + y = 6 \quad -4(-3) - 6 = 6$$

$$-5x - y = 21$$

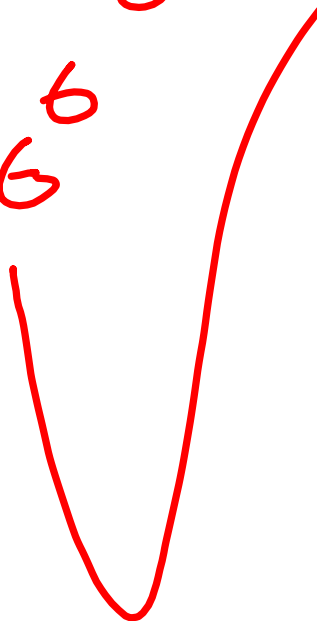
$$12 - 6 = 6$$

$$6 = 6$$

$$-5(-3) + 6 = 21$$

$$15 + 6 = 21$$

$$21 = 21$$



- | | |
|--------------------|----------------------|
| 10. (2, 4) | 11. (4, 9) |
| 12. (3, 2) | 13. (2, -2) |
| 14. (1, 2) | 15. (-3, -11) |
| 16. (-4, 4) | 17. (-1, 3) |
| 18. (-3, 5) | |

Solving Systems of Equations by Substitution

Step 1: Isolate one of the variables

Step 2: Substitute the expression from Step 1 into the OTHER equation

Step 3: Solve the new equation

Step 4: Substitute the answer from Step 3 into either of the original equations and solve

Step 5: Write your answer as an ordered pair.

$$\underline{y} = 2x - 1$$

$$3x + 2y = 26$$

$$3x + 2(2x - 1) = 26$$

$$3x + 4x - 2 = 26$$

$$7x - 2 = 26$$

$$+2 \quad +2$$

$$7x = 28$$

$$\frac{7x}{7} = \frac{28}{7}$$

$$x = 4$$

$$y = 2x - 1$$

$$y = 2(4) - 1$$

$$y = 8 - 1$$

$$y = 7$$

$$(4, 7)$$

$$4x - 3y = 2$$

$$x = -2y - 5$$

$$4(-2y - 5) - 3y = 2$$

$$-8y - 20 - 3y = 2$$

$$-11y - 20 = 2$$

$$\frac{-11y}{-11} = \frac{22}{-11}$$

$$y = -2$$

$$4x - 3y = 2$$

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

$$4x + 6 = 2$$

$$4x = -4$$

$$x = -1$$

$$(-1, -2)$$

$$3x - 2y = 4$$

$$x + 3y = 5$$

$$-3y - 3y$$

$$x = -3y + 5$$

$$3(-3y + 5) - 2y = 4$$

$$-9y + 15 - 2y = 4$$

$$-11y + 15 = 4$$

$$-11y = -11$$

$$y = 1$$

$$x + 3y = 5$$

$$x + 3(1) = 5$$

$$x + 3 = 5$$

$$-3 - 3$$

$$x = 2$$

$$(2, 1)$$

$$3x - 2y = 4$$

$$3x - 2(1) = 4$$

$$3x - 2 = 4$$

$$+2 +2$$

$$\frac{3x}{3} = \frac{6}{3}$$

$$x = 2$$

You try!

$$x = -y - 2$$

$$2x - 3y = -9$$

$$2(-y-2) - 3y = -9$$

$$-2y - 4 - 3y = -9$$

$$-5y - 4 = -9$$

$$-5y = -5$$

$$y = 1$$

$$x = -1 - 2$$

$$x = -3 \quad (-3, 1)$$

$$-5x + y = -3$$

$$3x - 8y = 24$$

$$y = 5x - 3$$

$$3x - 8(5x - 3) = 24$$

$$3x - 40x + 24 = 24$$

$$-37x + 24 = 24$$

$$(0, 3) \quad -37x = 0$$

$$x = 0$$

$$-5(0) + y = -3$$

$$y = -3$$

