

Systems of Equations: Lesson 4a

Strange Solutions: Worksheet 1

Name: _____

Answers

MATH ALL

Solve by substitution or elimination:

$$\begin{aligned} x &= -2y + 4 \\ 3.5x + 7y &= 14 \end{aligned}$$

$$3.5(-2y + 4) + 7y = 14$$

$$-7y + 14 + 7y = 14$$

$$14 = 14 \checkmark$$

infinite solutions
same lines

$$\begin{aligned} y &= -2x + 6 \\ 3y - x + 3 &= 0 \end{aligned}$$

$$3(-2x + 6) - x + 3 = 0$$

$$-6x + 18 - x + 3 = 0$$

$$-7x + 21 = 0$$

$$-7x = -21$$

$$x = 3$$

$$y = -2(3) + 6$$

$$y = 0$$

(3, 0)

$$\begin{aligned} -x + .5y &= 13 \\ x + 15 &= .5y \end{aligned}$$

$$\begin{array}{r} x - .5y = -15 \\ x + .5y = 13 \\ \hline 0 = -2 \end{array}$$

no solutions
parallel lines

$$\begin{aligned} 17 &= 11y + 12x \\ 12x + 11y &= 14 \end{aligned}$$

$$\begin{array}{r} -12x - 11y = -17 \\ 12x + 11y = 14 \\ \hline 0 = -3 \end{array}$$

no solutions
parallel lines

$$\begin{aligned} 5 &= .5x + 3y \\ 10 - x &= 6y \end{aligned}$$

$$2(.5x + 3y = 5)$$

$$\begin{array}{r} -x - 6y = -10 \\ x + 6y = 10 \\ \hline 0 = 0 \end{array}$$

infinite solutions
same lines

$$\begin{aligned} y &= x + 1 \\ 2x + y &= 10 \end{aligned}$$

$$2x + x + 1 = 10$$

$$3x + 1 = 10$$

$$3x = 9$$

$$x = 3$$

$$y = 3 + 1 = 4$$

(3, 4)

$$y = \frac{1}{4}x - 2$$

$$2x - 8y = 16$$

$$2x - 8\left(\frac{1}{4}x - 2\right) = 16$$

$$2x - 2x + 16 = 16$$

$$16 = 16$$

infinite solutions
same line

$$6x - 4y = 12$$

$$-2(3x - 2y = -6)$$

$$-6x + 4y = 12$$

$$\underline{6x - 4y = 12}$$

$$0 = 24$$

no solutions
parallel lines

$$2x - 8y = 14$$

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

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

$$\underline{2x - 8y = 14}$$

$$-16y = 18$$

$$y = \frac{-18}{16} = -\frac{9}{8}$$

$$x + 4\left(-\frac{9}{8}\right) = -2$$

$$x - 9 = -2$$

$$x = 7 \quad \left(7, -\frac{9}{8}\right)$$

$$y = -4x + 7$$

$$8x + 2y = 14$$

$$8x + 2(-4x + 7) = 14$$

$$8x - 8x + 14 = 14$$

$$14 = 14$$

infinite solutions
same lines

$$y = 5x + 2$$

$$y = x + 6$$

$$5x + 2 = x + 6$$

$$4x = 4$$

$$x = 1$$

$$y = 1 + 6 = 7$$

$$(1, 7)$$

$$12x = 6y - 3$$

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

$$-12x + 6y = 9$$

$$\underline{12x - 6y = -3}$$

$$0 = 6$$

no solutions
parallel lines