Name _____   Date _____

Solving Systems of Equations - Step-by-Step Lesson

Solve the system using elimination.

$-4x - 8y = -6$

$7x + 8y = -15$

Explanation:

Make sure the equations have opposite x terms or opposite y terms.

The y terms (-8y and 8y) are already opposites.

Add to eliminate one variable and solve for the other.

Add to eliminate the y terms, and then solve for x.

$$-4x \quad - \quad 8y \quad = \quad -6$$

$$+ \quad 7x \quad + \quad 8y \quad = \quad -15$$

$3x \quad + \quad 0y \quad = \quad -21$ **Add to eliminate the y terms**

$3x \quad = \quad -21$ **Simplify**

$x \quad = \quad -7$ **Divide both sides by 3**

Plug the result of Step 2 into one of the original equations and solve.

Take the result of Step 2, x = -7, and plug it into one of the original equations, such as -4x + -8y = -6. Then find the value of y.

-4x – 8y = -6

-4(-7) – 8y = -6 Plug in x = -7

28 – 8y = -6 Multiply

-8y = -34   Subtract 28 from both sides

y = 4.25   Divide both sides by 8

State the solution.

Since x = -7 and y = 4.25, the solution is (-7, 4.25).