

**Students will continue to develop their understanding of finding solutions for systems equations using the substitution method and be able to explain their processes.**

**Date: October 27, 2015**

1.  $(7 * 2) + 5 - 9$

$$\begin{array}{r} 14+5-9 \\ 19-9 \\ \textcircled{10} \end{array}$$

$$y = 6x - 9$$

$$y - 3 = 6x - 12$$

2. Convert from point-slope form to y-intercept form.  $y - 3 = 6(x - 2)$

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When using substitution, your equations will not always be in intercept form, the key thing to remember is that ONE of your equations has to have a variable isolated.

As long as at least ONE of your equations has an isolated variable, you can use the substitution method.

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$$\begin{array}{l} y = 3 \\ 4x + 2y = 18 \\ 4x + 2(3) = 18 \\ 4x + 6 = 18 \\ \underline{-6 \quad -6} \\ 4x = 12 \\ \underline{\quad 4 \quad \quad 4} \\ x = 3 \end{array}$$

$$\begin{array}{l} 4(3) + 2(3) = 18 \\ 12 + 6 = 18 \\ 18 = 18 \\ (3, 3) \end{array}$$

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$$\begin{array}{l} y = 3x - 2 \\ 2x + 4y = 20 \end{array}$$
$$2x + 4(3x - 2) = 20$$
$$2x + 12x - 8 = 20$$
$$14x - 8 = 20$$
$$\begin{array}{r} +8 \quad +8 \\ \hline 14x = 28 \\ \frac{14}{14} \quad \frac{28}{14} \end{array}$$
$$x = 2$$
$$(2, 4)$$
$$\begin{array}{l} y = 3(2) - 2 \\ y = 6 - 2 = \\ y = 4 \end{array}$$
$$\begin{array}{l} 2(2) + 4y = 20 \\ 4 + 4y = 20 \\ -4 \quad -4 \\ \hline 4y = 16 \\ y = 4 \end{array}$$

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$$\begin{array}{l} x = 4 \\ -2x + 4y = 8 \\ -2(4) + 4y = 8 \\ -8 + 4y = 8 \\ +8 \qquad +8 \\ \hline 4y = 16 \\ \frac{4y}{4} = \frac{16}{4} \\ y = 4 \end{array}$$
$$\begin{array}{l} -2x + 4(4) = 8 \\ -2x + 16 = 8 \\ \underline{-16 - 16} \\ -2x = -8 \quad x = 4 \\ \frac{-2x}{-2} = \frac{-8}{-2} \end{array}$$

$y = 4$

$(4, 4)$

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$$\begin{array}{l} x = 2y + 4 \\ 3x - 4y = 10 \end{array}$$
$$3(2y + 4) - 4y = 10$$
$$\begin{array}{r} 6y + 12 - 4y = 10 \\ -12 \quad -12 \\ \hline 2y - 4y = -2 \\ \sqrt{0} \end{array}$$
$$\frac{2y}{2} = \frac{-2}{2}$$
$$y = -1$$
$$(2, -1)$$
$$\begin{array}{l} x = 2(-1) + 4 \\ x = -2 + 4 \\ x = 2 \end{array}$$
$$\begin{array}{l} 3x - 4(-1) = 10 \\ 3x + 4 = 10 \\ -4 \quad -4 \\ \hline 3x = 6 \\ \frac{3x}{3} = \frac{6}{3} \\ x = 2 \end{array}$$

