

HW: 6.3/7-15

Warm up:

Solve.

$$5x - 8y = -7$$

$$x + y = -4$$

$$\begin{array}{r}
 5(-7-4) - 8y = -7 \\
 -5y - 20 - 8y = -7 \\
 -13y - 20 = -7 \\
 \quad \quad +20 \quad +20 \\
 \hline
 -13y = 13 \\
 \underline{-13} \quad \underline{-13} \\
 y = -1
 \end{array}$$

$$\begin{array}{r}
 x + y = -4 \\
 -y \quad -y \\
 \hline
 x = -y - 4
 \end{array}$$

$$\begin{array}{r}
 1 - 4 = -3 \\
 y = -1 \\
 \hline
 x = -3 \\
 y = -1
 \end{array}$$

$$\begin{array}{r}
 x + y = -4 \\
 -x \quad -x \\
 \hline
 y = -4 - x
 \end{array}$$

$$\begin{array}{r}
 5x - 8(-4-x) = -7 \\
 5x + 32 + 8x = -7 \\
 13x + 32 = -7 \\
 \quad \quad -32 \quad -32 \\
 \hline
 13x = -39 \\
 \underline{13} \quad \underline{13} \\
 x = -3
 \end{array}$$

$$\begin{array}{r}
 -4 - (-3) \\
 -4 + 3 \\
 -1
 \end{array}$$

$$\begin{array}{r}
 x = -3 \\
 y = -1
 \end{array}$$

$$x = -3$$

HW Solutions

② $y = 5x + 1$

$4x + y = 10$

$4x + 5x + 1 = 10$

$9x + 1 = 10$

$\begin{array}{r} -1 \quad -1 \\ \hline 9x = 9 \\ \frac{9x}{9} = \frac{9}{9} \quad x = 1 \end{array}$

$5(1) + 1$
 $5 + 1$
 6

$x = 1$
 $y = 6$

(20)

$$\begin{array}{r}
 5x - y = 5 \\
 -5x \qquad -5x \\
 \hline
 -y = -5x + 5 \\
 \hline
 -1 \qquad -1 \\
 \hline
 y = 5x - 5
 \end{array}$$

$$\begin{array}{r}
 5(2) - 5 \\
 10 - 5 \\
 5
 \end{array}$$

$$\begin{array}{l}
 x = 2 \\
 y = 5
 \end{array}$$

$$-x + 3y = 13$$

$$\begin{array}{r}
 -x + 3(5x - 5) = 13 \\
 -x + 15x - 15 = 13 \\
 14x - 15 = 13 \\
 \qquad +15 \quad +15
 \end{array}$$

$$\begin{array}{r}
 14x = 28 \\
 \frac{14}{14} \quad \frac{28}{14} \\
 \hline
 x = 2
 \end{array}$$

(2)

$$\begin{array}{r} 2x + y = 4 \\ -2x \quad -2x \\ \hline y = -2x + 4 \end{array}$$

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

$$\begin{array}{r} -2x - 2x + 4 = -4 \\ -4x + 4 = -4 \\ \quad -4 \quad -4 \\ \hline -4x = -8 \\ \quad -4 \quad -4 \\ \hline x = 2 \end{array}$$

$$\begin{array}{r} -2(2) + 4 \\ -4 + 4 \\ 0 \end{array}$$

$$\begin{array}{l} x = 2 \\ y = 0 \end{array}$$

$$\begin{array}{l} \textcircled{2} \quad -5x + 4y = 20 \\ -5x + 4\left(\frac{5}{4}x + 5\right) = 20 \\ -5x + 5x + 20 = 20 \\ 20 = 20 \end{array} \quad \begin{array}{r} 10x - 8y = -40 \\ -10x \quad -10x \\ \hline -8y = -10x - 40 \\ -8 \quad -8 \\ \hline y = \frac{5}{4}x + 5 \end{array}$$

infinitely many solutions

(10)

$$x = y - 1$$

$$-x + y = -1$$

$$-1(y - 1) + y = -1$$

$$-x + 1 + x = -1$$

$$1 = -1$$

no solution

④

$$y = -4x + 11$$

$$3x + y = 9$$

$$3x - 4x + 11 = 9$$

$$-x + 11 = 9$$

$$\begin{array}{r} -11 \quad -11 \\ \hline \end{array}$$

$$\begin{array}{r} -x = -2 \\ \hline \end{array}$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$\begin{array}{r} x = 2 \\ \hline \end{array}$$

$$\begin{array}{r} -4(2) + 11 \\ -8 + 11 \\ 3 \end{array}$$

$$\begin{array}{l} x = 2 \\ y = 3 \end{array}$$

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$$y = -3x + 1$$

$$2x + y =$$

$$2x - 3x + 1 = 1$$

$$-x + 1 = 1$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$-x = 0$$

$$\begin{array}{r} -1 \quad -1 \\ \hline x = 0 \end{array}$$

$$-3(0) + 1$$

$$\begin{array}{r} 0 + 1 \\ \hline \end{array}$$
$$\begin{array}{l} x = 0 \\ y = 1 \end{array}$$

Solve.

$$\begin{array}{r} x + 3 = 7 \\ -3 \quad -3 \\ \hline x = 4 \end{array}$$

Addition and Subtraction Method

$$\begin{array}{r} 5 = 5 \\ + x \quad + 3 \\ \hline 5 + x = 8 \end{array} \quad \begin{array}{r} x = 3 \\ 5 = 5 \\ + (x = 3) \\ \hline 5 + x = 8 \end{array}$$

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

$$\begin{array}{r}
 5x - y = 12 \\
 \hline
 3x + y = 4 \\
 \hline
 8x = 16 \\
 \frac{8x}{8} = \frac{16}{8} \\
 x = 2
 \end{array}$$

$$\begin{array}{l}
 x = 2 \\
 y = -2
 \end{array}$$

$$6c + 7d = -15$$

$$- (6c - 2d = 12)$$

$$\begin{array}{r}
 6c + 6 = 12 \\
 -6 - 6 \\
 \hline
 6c = 6 \\
 \frac{6}{6} \quad \frac{6}{6} \\
 \hline
 c = 1
 \end{array}$$

$$\begin{array}{r}
 9d = -27 \\
 \frac{9}{9} \quad \frac{-27}{9} \\
 \hline
 d = -3
 \end{array}$$

$$\begin{array}{l}
 c = 1 \\
 d = -3
 \end{array}$$

$$\begin{array}{r}
 -5 + (+5) \\
 0 \\
 4s - 5t = 7 \\
 - (2s - 5t = 3) \\
 \hline
 2s = 4 \\
 \frac{2s}{2} = \frac{4}{2} \\
 s = 2
 \end{array}$$

$s = 2$
 $t = \frac{1}{5}$

$$\begin{array}{r}
 2(2) - 5t = 3 \\
 4 - 5t = 3 \\
 -4 \quad -4 \\
 \hline
 -5t = -1 \\
 \frac{-5t}{-5} = \frac{-1}{-5} \\
 t = \frac{1}{5}
 \end{array}$$

$$-4s + 7t = 10$$

$$+ (4s - 2t = 5)$$

$$\begin{array}{r} -4s + 7t = 10 \\ + (4s - 2t = 5) \\ \hline 5t = 15 \\ \hline s \qquad \quad s \\ \hline t = 3 \end{array}$$

$$\begin{array}{r} 4s - 6 = 5 \\ +6 \quad +6 \\ \hline 4s = 11 \\ \hline s = \frac{11}{4} \end{array}$$

$$\begin{array}{l} s = \frac{11}{4} \\ t = 3 \end{array}$$

Practice

$$\begin{array}{r} x + y = 7 \\ -5 \quad -5 \\ \hline y = 2 \end{array}$$

$$\begin{array}{l} x = 5 \\ y = 2 \end{array}$$

$$\begin{array}{r} x + y = 7 \\ + (x - y = 3) \\ \hline 2x = 10 \\ \frac{2}{2} \quad \frac{10}{2} \\ \hline x = 5 \end{array}$$

$$3n - 2t = 16$$

$$+ (5n + 2t = 8)$$

$$\begin{array}{r} 15 + 2t = 8 \\ -15 \quad -15 \\ \hline \end{array}$$

$$\begin{array}{r} 2t = -7 \\ \hline t = -\frac{7}{2} \end{array}$$

$$\begin{array}{r} 8n = 24 \\ \hline 8 \quad 8 \\ \hline \end{array}$$

$$n = 3$$

$$\begin{array}{r} n = 3 \\ t = -\frac{7}{2} \end{array}$$

$$12n + 3m = 18$$

$$-(5n + 3m = 4)$$

$$\begin{array}{r} 7n = 14 \\ \hline n = 2 \end{array}$$

$$n = 2$$

$$\begin{array}{r} 10 + 3m = 4 \\ -10 \quad -10 \\ \hline \end{array}$$

$$\begin{array}{r} 3m = -6 \\ \hline 3 \quad 3 \\ \hline \end{array}$$

$$m = -2$$

$$6p - 7q = 28$$

$$-6p + 3q = -12$$

$$2c + 3d = 0$$

$$5c - 3d = 21$$

$$12p - 18q = 14$$

$$-15p - 18q = -4$$

