

Algebra 1 Worksheet #3 Unit 9 selected solutions

Solve each of the following systems of equations using the **multiplication-addition method**. Show your work neatly organized.

$$\begin{array}{rcl} 1. & 2x + 3y = 9 & x = 3 \\ & 2x - y = 5 & y = 1 \end{array}$$

$$\begin{array}{rcl} 2x + 3y = 9 & \longrightarrow & 2x + 3y = 9 \\ 2x - y = 5 & \xrightarrow{3} & \underline{6x - 3y = 15} \\ & & 8x = 24 \\ & & x = 3 \end{array}$$

$$\begin{array}{rcl} 2x + 3y = 9 & \longrightarrow & 2x + 3y = 9 \\ 2x - y = 5 & \xrightarrow{-1} & \underline{-2x + y = -5} \\ & & 4y = 4 \\ & & y = 1 \end{array}$$

$$\begin{array}{rcl} 12. & x + 4y = 14 & x = -2 \\ & 2x + 5y = 16 & y = 4 \end{array}$$

$$\begin{array}{rcl} x + 4y = 14 & \xrightarrow{5} & 5x + 20y = 70 \\ 2x + 5y = 16 & \xrightarrow{-4} & \underline{-8x - 20y = -64} \\ & & -3x = 6 \\ & & x = -2 \end{array}$$

$$\begin{array}{rcl} x + 4y = 14 & \xrightarrow{-2} & -2x - 8y = -28 \\ 2x + 5y = 16 & \longrightarrow & \underline{2x + 5y = 16} \\ & & -3y = -12 \\ & & y = 4 \end{array}$$

$$\begin{array}{rcl} 3. & 2x - 3y = -13 & x = 1 \\ & 3x - y = -2 & y = 5 \end{array}$$

$$\begin{array}{rcl} 2x - 3y = -13 & \longrightarrow & 2x - 3y = -13 \\ 3x - y = -2 & \xrightarrow{-3} & \underline{-9x + 3y = 6} \\ & & -7x = -7 \\ & & x = 1 \end{array}$$

$$\begin{array}{rcl} 2x - 3y = -13 & \xrightarrow{3} & 6x - 9y = -39 \\ 3x - y = -2 & \xrightarrow{-2} & \underline{-6x + 2y = 4} \\ & & -7y = -35 \\ & & y = 5 \end{array}$$

$$\begin{array}{rcl} 17. & 2x - 3y = 4 & x = \frac{50}{7} \\ & x + 2y = 14 & y = \frac{24}{7} \end{array}$$

$$\begin{array}{rcl} 2x - 3y = 4 & \xrightarrow{2} & 4x - 6y = 8 \\ x + 2y = 14 & \xrightarrow{3} & \underline{3x + 6y = 42} \\ & & 7x = 50 \\ & & x = \frac{50}{7} \end{array}$$

$$\begin{array}{rcl} 2x - 3y = 4 & \longrightarrow & 2x - 3y = 4 \\ x + 2y = 14 & \xrightarrow{-2} & \underline{-2x - 4y = -28} \\ & & -7y = -24 \\ & & y = \frac{24}{7} \end{array}$$