

# Algebra lesson 13 quiz answers

Monday, December 16, 2013

9:14 PM

Solve the following simultaneous equations by elimination:

$$\begin{array}{r} 1) \quad 2x + y = 10 \quad \text{---} \textcircled{1} \\ \quad \quad 2x + 2y = 15 \quad \text{---} \textcircled{2} \end{array}$$

$$\begin{array}{l} \textcircled{2} - \textcircled{1} : \quad y = 5 \\ \text{sub } y = 5 \text{ into } \textcircled{1} : \quad 2x + 5 = 10 \\ \quad \quad \quad \quad \quad 2x = 5 \\ \quad \quad \quad \quad \quad x = \frac{5}{2} \end{array}$$

$$\begin{array}{r} 2) \quad 3x + 2y = 10 \quad \text{---} \textcircled{1} \\ \quad \quad 4x + 3y = 16 \quad \text{---} \textcircled{2} \end{array}$$

$$\begin{array}{l} \textcircled{1} \times 3 : \quad 9x + 6y = 30 \\ \textcircled{2} \times 2 : \quad 8x + 6y = 32 \\ \textcircled{1} - \textcircled{2} : \quad x = 2 \\ \text{sub } x = 2 \text{ into } \textcircled{1} : \end{array}$$

$$\begin{array}{l} 3 \times 2 + 2y = 10 \\ 6 + 2y = 10 \\ 2y = 10 - 6 \\ 2y = 4 \\ y = \frac{4}{2} = 2 \end{array}$$

$$\begin{array}{r} 3) \quad 2x + 5y + 6 = 0 \quad \text{---} \textcircled{1} \\ \quad \quad 2x = 3y - 10 \quad \text{---} \textcircled{2} \end{array}$$

$$\begin{array}{l} \text{rearrange } \textcircled{2} : \quad 2x - 3y + 10 = 0 \\ \textcircled{1} - \textcircled{2} : \quad 8y - 4 = 0 \\ \quad \quad \quad 8y = 4 \\ \quad \quad \quad y = \frac{4}{8} = \frac{1}{2} \end{array}$$

$$\text{sub } y = \frac{1}{2} \text{ into } \textcircled{2}$$

$$2x = 3 \times \frac{1}{2} - 10$$

$$2x = -8.5$$

$$x = \frac{-8.5}{2} = -4.25$$