

Connor Croft

1.

A. x^{11}

B. $12x^6$

C. x

D. $9x^6$

E. $\sqrt{x}^2$

2.

$$\begin{array}{rcl}
 \text{A. } 15x - 2 & = & 12x + 9 \\
 \downarrow +2 & & \downarrow +2 \\
 15x & = & 12x + 11 \\
 \downarrow -12x & & \downarrow -12x \\
 3x & = & 11 \\
 \downarrow \div 3 & & \downarrow \div 3
 \end{array}$$

$$x = 3.66$$

B.

$$\begin{array}{rcl}
 3(7x - 1) & = & 6(x + 3) \\
 \downarrow \times 3 & & \downarrow \times 6 \\
 21x - 3 & = & 6x + 18 \\
 \downarrow +3 & & \downarrow +3 \\
 21x & = & 6x + 21 \\
 \downarrow -6x & & \downarrow -6x \\
 15x & = & 21 \\
 \downarrow \div 15 & & \downarrow \div 15
 \end{array}$$

$$x = 1.4$$

$$\begin{array}{rcl}
 \text{C. } \frac{5x+3}{4} & = & \frac{2x-1}{9} \\
 \downarrow \times 9 & & \downarrow \times 4
 \end{array}$$

$$\begin{array}{rcl}
 45x + 27 & = & 8x - 4 \\
 \downarrow -27 & & \downarrow -27
 \end{array}$$

$$\begin{array}{rcl}
 45x & = & 8x - 23 \\
 \downarrow -8x & & \downarrow -8x
 \end{array}$$

$$\begin{array}{rcl}
 37x & = & -23 \\
 \downarrow \div 37 & & \downarrow \div 37
 \end{array}$$

$$x = 0.62$$

3.

A. $x^2 + 10x + 21 = 0$

$\hookrightarrow (x+3)(x+7)$

B. $x^2 - 3x + 2 = 0$

$\hookrightarrow (x-1)(x-2)$

C.

C. $x^2 + 12x + 20 = 0$

$\hookrightarrow (x+2)(x+10)$

D. $x^2 - 64 = 0$

$\hookrightarrow (x-8)(x+8)$

E. $2x^2 + 9x + 10 = 0$

$\hookrightarrow (2x+5)(x+2)$

4.

$$14x^2 + 3x = 11$$

$$x^1 = \frac{-(3) - \sqrt{625}}{2 \cdot 14} = \underline{\underline{-1}}$$

$$x^2 = \frac{-(3) + \sqrt{625}}{2 \cdot 14} = \underline{\underline{\frac{11}{14}}}$$

5.

$$\begin{array}{l} 1. 5x + 3y = 39 \\ 2. 8x + 2y = 42 \end{array} \left\{ \begin{array}{l} \times 2 \\ \times 3 \end{array} \right.$$

↓

$$\begin{array}{l} 1. 10x + 6y = 78 \\ 2. 24x - 6y = 126 \end{array} \rightarrow \text{Add}$$

$$\begin{array}{r} 34x \quad \cancel{-6y} = 204 \\ \downarrow \div 34 \quad \downarrow \div 34 \end{array}$$

$$x = 6$$

$$8x + 2y = 42$$

↓

$$\begin{array}{r} 48 + 2y = 42 \\ \downarrow -48 \quad \downarrow -48 \end{array}$$

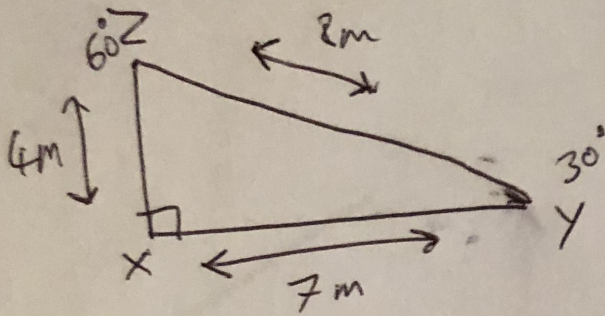
$$\begin{array}{r} 2y = -6 \\ \downarrow \div 2 \quad \downarrow \div 2 \end{array}$$

$$y = \underline{\underline{-3}}$$

6.

$$\begin{aligned}
 & 5(2x^2 - y^2) - x^2(x^2 - y) - x^2y - x^4 \\
 & (5)(2x^2) + 5(-y^2) + -x^4 + x^2y + -x^2y + -x^4 \\
 & 10x^2 + -5y^2 + -x^4 + x^2y + -x^2y + -x^4 \\
 & (-x^4 + -x^4) + (x^2y + -x^2y) + (10x^2) + (-5y^2) \\
 & = \underline{\underline{2x^4 + 10x^2 + -5y^2}}
 \end{aligned}$$

7.



1. 30°
2. 60°
3. ~~8m~~

$$\begin{aligned}
 &= \sqrt{4^2 + 7^2} \\
 &= \sqrt{16 + 49} \\
 &= \sqrt{65} \approx 8.06 \text{ m}
 \end{aligned}$$

$$(YZ)^2 = (7)^2 + (4)^2$$

$$(YZ)^2 = 49 + 16$$

$$(YZ)^2 = 65$$

$$(YZ) = \sqrt{65}$$

$$YZ = 8.06$$

8.