

What are the roots for the following equation:

1. $y = (x - 6)(x + 5)$

$$\begin{aligned} x-6=0 & \quad x+5=0 \\ x=6 & \quad x=-5 \\ \{ -5, 6 \} \end{aligned}$$

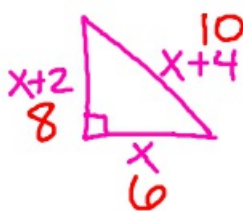
$$x=2$$

$$\begin{aligned} x-2=0 \\ y = (x-2)(x-2) \\ x^2 - 2x - 2x + 4 \\ \boxed{y = x^2 - 4x + 4} \end{aligned}$$

2. $y = (2x + 1)(x - 7)$

$$\begin{aligned} 2x+1=0 & \quad x-7=0 \\ x=-\frac{1}{2} & \quad x=7 \\ \{ -\frac{1}{2}, 7 \} \end{aligned}$$

3. The length of the longer leg of a right triangle is 2 more than the length of the shorter leg. The hypotenuse is 4 more than the length of the shorter leg. How long is each side of the triangle?



$$ac = \frac{-12}{-b/2}$$

$$\begin{aligned} (x)^2 + (x+2)^2 &= (x+4)^2 \\ x^2 + \cancel{x^2} + 4x + 4 &= \cancel{x^2} + 8x + 16 \\ \cancel{-x^2} - 8x - 16 &\quad \cancel{-x^2 - 8x - 16} \\ \hline x^2 - 4x - 12 &= 0 \\ (x^2 - 6x + 2x - 12) &= 0 \\ \textcircled{1}(x-6)\textcircled{2}(x-6) &= 0 \\ (x+2)(x-6) &= 0 \\ x+2=0 & \quad x-6=0 \\ \cancel{x=-2} & \quad \boxed{x=6} \end{aligned}$$

Quadratic Graph Stations

Activity