

Algebra SAT Review

February 13, 2021

1 Find the Zero's using Factoring the Quadratic

1. $x^2 - 5x + 6 = 0$

Solution

$$x^2 - 5x + 6 = 0$$

$$x^2 - 2x - 3x + 6 = 0$$

$$x(x - 2) - 3(x - 2) = 0$$

$$(x - 2)(x - 3) = 0$$

$$x = 2, x = 3$$

2. $x^2 - x - 12 = 0$

Solution

$$x^2 - x - 12 = 0$$

$$x^2 - 4x + 3x - 12 = 0$$

$$x(x - 4) + 3(x - 4) = 0$$

$$(x - 4)(x - 3) = 0$$

$$x = 4, x = 3$$

3. $x^2 + 5x + 6 = 0$

Solution

$$\begin{aligned}x^2 + 3x + 2x + 6 &= 0 \\x(x + 3) + 2(x + 3) &= 0 \\(x + 3)(x + 2) &= 0 \\x = -3, x = -2\end{aligned}$$

4. $x^2 + 11x + 30 = 0$

Solution

$$\begin{aligned}x^2 + 5x + 6x + 30 &= 0 \\x(x + 5) + 6(x + 5) &= 0 \\(x + 5)(x + 6) &= 0 \\x = -5, x = -6\end{aligned}$$

5. $x^2 + x - 2 = 0$

Solution

$$\begin{aligned}x^2 + 2x - x - 2 &= 0 \\x(x + 2) - 1(x + 2) &= 0 \\(x + 2)(x - 1) &= 0 \\x = -2, x = 1\end{aligned}$$

6. $x^2 + 2x - 8 = 0$

Solution

$$\begin{aligned}x^2 + 4x - 2x - 8 &= 0 \\x(x + 4) - 2(x + 4) &= 0 \\(x + 4)(x - 2) &= 0 \\x = -4, x = 2\end{aligned}$$

7. $x^2 + 7x + 10 = 0$

Solution

$$\begin{aligned}x^2 + 5x + 2x + 10 &= 0 \\x(x + 5) + 2(x + 5) &= 0 \\(x + 5)(x + 2) &= 0 \\x = -5, x = -2\end{aligned}$$

8. $x^2 - 4x - 21 = 0$

Solution

$$\begin{aligned}x^2 - 7x + 3x - 21 &= 0 \\x(x - 7) + 3(x - 7) &= 0 \\(x - 7)(x + 3) &= 0 \\x = 7, x = -3\end{aligned}$$

9. $x^2 - 2x - 48 = 0$

Solution

$$\begin{aligned}x^2 + 6x - 8x - 48 &= 0 \\x(x + 6) - 8(x + 6) &= 0 \\(x + 6)(x - 8) &= 0 \\x = -6, x = 8\end{aligned}$$

10. $x^2 - 24x + 144 = 0$

Solution

$$\begin{aligned}x^2 - 12x - 12x + 144 &= 0 \\x(x - 12) - 12(x - 12) &= 0 \\(x - 12)(x - 12) &= 0 \\x = 12, x = 12\end{aligned}$$

Repeated roots, zero of multiplicity 2