

Solving Quadratic Equation

NOTE: Solving quadratic equations is NOT done the same way we solve linear equations.

Steps for Solving Quadratic Equations:

Step 1: Set the equation equal to zero.

Step 2: Factor the polynomial completely.

Step 3: Set each factor equal to zero.

Step 4: Solve.

Example 1:

Solve for x if

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

Step 1: The equation is already set equal to zero.

Step 2: Factor:

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

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

Step 3: $x - 3 = 0$ $x + 2 = 0$

$$\begin{array}{cc} \underline{+3} & \underline{+3} & \underline{-2} & \underline{-2} \end{array}$$

Step 4: $x = 3$ $x = -2$

Example 2:

Solve for x if:

$$x(x - 5) = -4$$

Step 1: $x(x - 5) = -4$
 $\quad \quad \quad \underline{\quad +4 \quad} \quad \underline{\quad +4 \quad}$
 $\quad \quad \quad x(x - 5) + 4 = 0$

We need to distribute the x in order to factor the trinomial.

$$x^2 - 5x + 4 = 0$$

Step 2:

Step 3:

Step 4:

Solve for x .

1. $x^2 + 3x + 2 = 0$

2. $x^2 = 4 + 3x$

3. $2(x^2 - 66) = -13x$