

Solving Equations by Factoring

We can use factoring to solve algebraic equations. We will use the property of multiplication of two numbers equaling zero, (if $a \cdot b = 0$ then either $a = 0$ or $b = 0$)

Solve $x^2 + 5x = 0$

By factoring we get

$$x(x + 5) = 0 \quad \text{therefore}$$

$$x = 0 \text{ or } x + 5 = 0 \quad \text{which implies}$$

$$x = 0 \text{ or } x = -5$$

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

By factoring we get

$$2x(x - 3) = 0 \quad \text{therefore}$$

$$2x = 0 \text{ or } x - 3 = 0 \quad \text{which gives us}$$

$$x = 0 \text{ or } x = 3$$

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

By factoring we get

$$(x + 3)(x + 2) = 0 \quad \text{therefore}$$

$$x + 3 = 0 \text{ or } x + 2 = 0 \quad \text{which leads to}$$

$$x = -3 \text{ or } x = -2$$