Quadratic Functions

$$y = f(x) = ax^2 + bx + c$$

$$ax^2 + bx + c = 0 \quad \text{or} \quad x^2 + \frac{b}{a}x + \frac{c}{a} = 0$$

$$x^2 + \frac{b}{a}x + \frac{c}{a} = 0$$

Roots: $(x - r_1)(x - r_2) = x^2 - (r_1 + r_2)x + r_1 r_2$

$$\therefore \rightarrow \quad r_1 + r_2 = -\frac{b}{a} \quad \text{and } r_1 r_2 = \frac{c}{a}$$