

Postać ogólna

$$f(x) = ax^2 + bx + c$$
$$\Delta = b^2 - 4ac$$

Miejsca zerowe

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

$$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

$$a > 0 \Rightarrow$$



$$p = \frac{-b}{2a} \quad q = -\frac{\Delta}{4a}$$

Współrzędne wierzchołka

Funkcja kwadratowa

Postać iloczynowa

$$f(x) = a(x - x_1)(x - x_2)$$

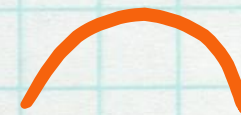
Postać kanoniczna

$$f(x) = a(x - p)^2 + q$$

oś symetrii paraboli

$$P = \frac{x_1 + x_2}{2}$$

$$a < 0 \Rightarrow$$



Rozwiąż równanie.

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

$$x^2 - 5x - 14 = 0$$

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

$$x^2 + 11x + 18 = 0$$

$$x^2 - 12 = x$$

$$-x^2 + 5x = -5x + 16$$

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

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

$$-x^2 + 5x = -x + 9$$

$$-x^2 + 8 = 7x$$

$$(x + 3)(2x - 5) = 14x - 8$$

$$(2x - 3)^2 - 21 = x$$

$$x^2 + 3x - 18 = (2x - 6)(2x - 1)$$

$$(4x - 5)^2 = 4x^2 - 9x + 5$$

$$2x(2x + 3) = -9 - 6x$$

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

$$-10x - 40 = (4 - x)(4 + x)$$

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

$$12x + 9x^2 + 4 = 0$$

$$12x - 1 = 36x^2$$

$$10 + 3x^2 = -7x$$

$$2x^2 = 7x - 4$$

$$5x = 25x^2$$

$$4x(3x - 5) = 0$$

$$x^2 = 3x$$

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

$$(2x + 5)(x - 4) = 0$$

$$(3x + 12)(x + y) = 0$$

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

$$(x - 5)(x + 3) = 0$$

$$(x + 4)^2 - 8 = 28$$

$$(x + 5)^2 + 8 = -2$$

$$(x + 3)^2 + 16 = 0$$