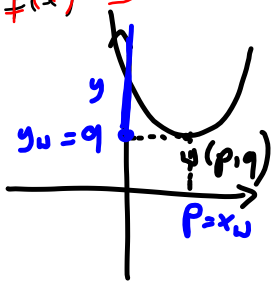
Funkcja kwadratowa w postaci ogólnej:

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

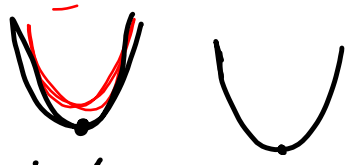
$a \neq 0$

$f(x) = 3x^2 + 5x - 2$

$f(x) = -3x^2 + 5x - 2$



$a > 0$

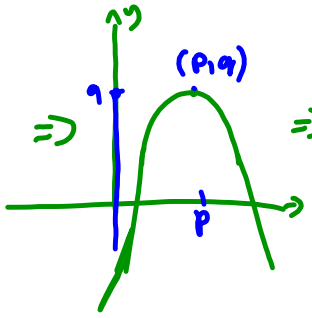


W(p,q)

$W(x_w, y_w)$

ZW: $y \in \langle q, +\infty)$

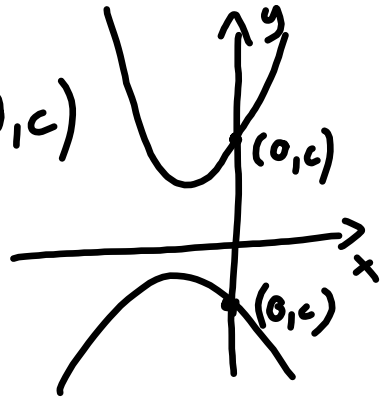
$a < 0 \Rightarrow$



$\Rightarrow$ ZW: $y \in (-\infty, q\rangle$

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

$f(0) = a \cdot 0 + b \cdot 0 + c = c \Rightarrow (0, c)$



$a = \frac{1}{10}$

$a = 10$

$a = -2$

II postać f. kwadr.

postać kanoniczna $a \neq 0$

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

$q =$

$p =$

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

6.15 f

$W = ?$ $OY: (0;-10)$

$y = -3x^2 - 18x - 20$

p. og. f. kwadr.
$a = -3 \neq 0$
$b = -18$
$c = -20$

$\Downarrow$

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

$y = -3(x^2 + 6x + 9 - 9) - 20 =$

$a^2 + 2ab + b^2 = (a+b)^2$

$-3((x+3)^2 - 9) - 20 = -3(x+3)^2 + 27 - 20$

$= -3(x+3)^2 + 7$

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

$a = -3$ $p = -3$ $q = 7$

FUJ

W (-3,7)

I

II III IV

(-6,-10) (0,-20)

oś symetrii paraboli:

$x = p \Rightarrow \boxed{x = -3}$

$f(x) = \frac{1}{2}x^2 + 6x - 7$

$\frac{1}{2} \cdot 12x$

$f(x) = \frac{1}{2}(x^2 + 12x - 14)$

$= \frac{1}{2}((x+6)^2 - 36 - 14)$

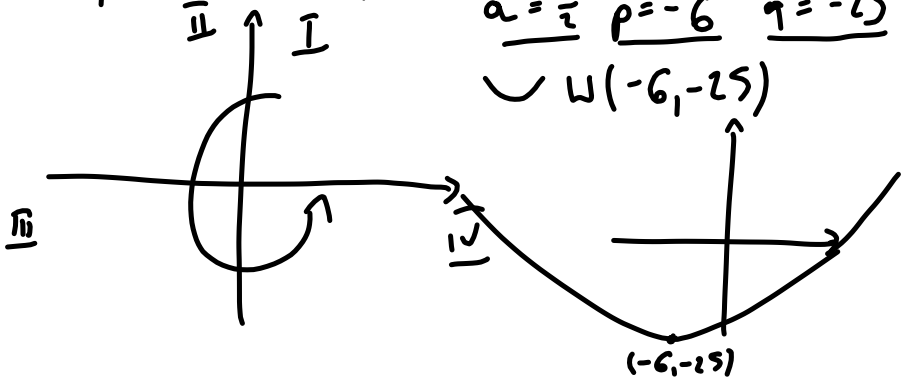
$= \frac{1}{2}((x+6)^2 - 50) = \frac{1}{2}(x+6)^2 - 25$

$a = \frac{1}{2} \quad p = -6 \quad q = -25$

$W(-6, -25)$

$f(x) = 3x^2 + 9x + 2$

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



$(x-1)^2 = x^2 - 2x + 1$

$(x+1)^2$

$(x \quad$

$(x \mp 13)^2$

$(x + \frac{1}{2})^2 = x^2 + x + \frac{1}{4}$

$(x - \frac{1}{2})^2$

$(x - 1\frac{1}{2})^2$

$(x + 1\frac{1}{2})^2$