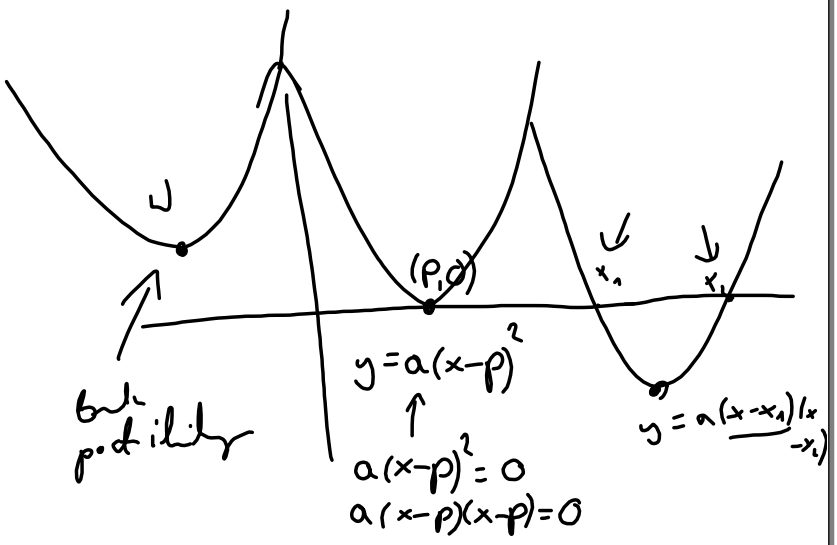
$y = ax^2 + bx + c \qquad a \neq 0$

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

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

$x_1, x_2 \leftarrow$ m. zerowe f. kw.

PIERWIASTKI RÓWNANIA KWADRATOWEGO.



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

$\Delta = 2$

$f(x) = x^2 - 6x + 5$

$(x-1)(x-5) = 0$

$-1 \cdot -5 = 5$

$-1 + -5 = -6$

$(x-1)(x-5) = 0$

$x = 1 \quad \vee \quad x = 5$

$f(x) = (x-1)(x-5)$

$f(x) = x^2 - 6x + 5 = (x^2 - 6x + 9) - 9 + 5$

$a^2 - 2ab + b^2$

$a = x$

$2 \cdot 3 = 6$

$b = 3$

$f(x) = (x-3)^2 - 4$

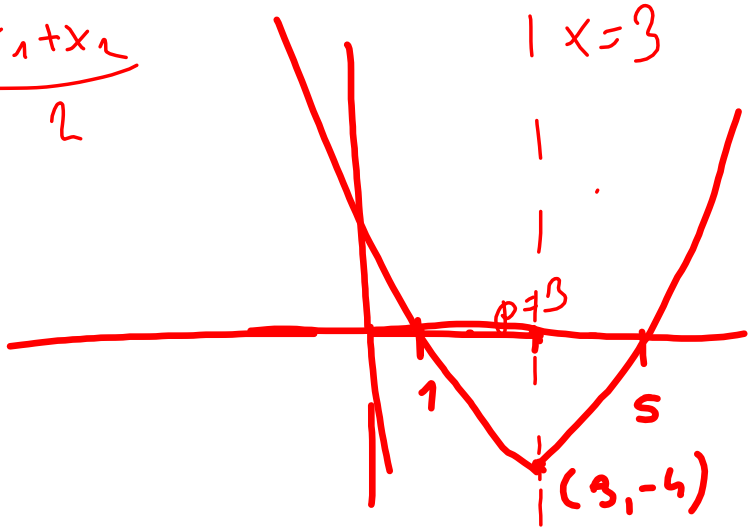
$f(x) = a(x-p)^2 + q$

$a = 1$

$p = 3$

$q = -4$

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



$f(x) = 2x^2 - 12x - 14$

$f(x) = 2(x^2 - 6x - 7)$

1) $a \neq 0$

2) jeśli $\Delta > 0$

3 $-1 + 7 = 6$

$1 + (-7)$

$f(x) = 2(x+1)(x-7)$

$x^2 - 7x + x - 7$

$x + 1 = 0 \quad \vee \quad x - 7 = 0$

$x = -1 \qquad x = 7$

$x_1 = -1 \quad \sim \quad x_2 = 7$

$f(x) = 2x^2 - 12x - 14$

$f(x) = 2(x^2 - 6x) - 14$

$a^2 - 2ab + b^2 \quad a = x \quad b = 3$

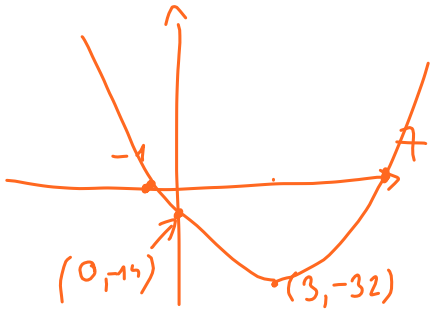
$f(x) = 2[(x-3)^2 - 9] - 14$ ← op. [ ]

$x^2 - 6x + 9 - 9$

$f(x) = 2(x-3)^2 - 18 - 14$

$f(x) = 2(x-3)^2 - 32$

$a = 2$
$p = 3$
$q = -32$



$-3(x^2+1+3)$

$-3((x+\frac{1}{2})^2-\frac{1}{4}+3) = -3(x+\frac{1}{2})^2-8\frac{1}{4}$.

58. $-3x^2-3x-9<0$
59. $-4x^2-4x-16<0$
60. $2x^2+16x+14\geq 0$
61. $5x^2+65x+150\leq 0$
62. $-4x^2+32x-28>0$
63. $3x^2+3x+9\leq 0$
64. $5x^2+65x+210>0$
65. $-x^2+12x-32<0$
66. $2x^2-34x+132\leq 0$
67. $5x^2+35x+30\geq 0$
68. $3x^2-24x+21\geq 0$

$2(x^2+8x+7)\geq 0$

$2(x+1)(x+7)\geq 0$

$5(x^2+7x+6) = 5(x+6)(x+1)$