

Некоторые более сложные примеры

Разложить на множители

$$\begin{aligned}
 1) (*) x^4 + 4 &= (x^2)^2 + 2x^2 \cdot 2 + 2^2 - 2x^2 \cdot 2 = \\
 &= (x^2 + 2)^2 - 4x^2 = (x^2 + 2)^2 - (2x)^2 = \\
 &= ((x^2 + 2) - 2x)((x^2 + 2) + 2x) = \\
 &= (x^2 + 2 - 2x)(x^2 + 2 + 2x)
 \end{aligned}$$

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

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

$$\begin{aligned}
 2) (*) 2bc + a^2 - b^2 - c^2 &= \\
 a^2 + 2bc - b^2 - c^2 &= \\
 a^2 - (-2bc + b^2 + c^2) &= \\
 a^2 - (b^2 - 2bc + c^2) &= \\
 a^2 - (b-c)^2 &= (a-(b-c))(a+(b-c)) = \\
 &= (a-b+c)(a+b-c)
 \end{aligned}$$

$$(x-y)^2 = x^2 - 2xy + y^2$$

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

$$(-x+y)a = -a(x-y)$$

$$\begin{aligned}
 2bc - b^2 - c^2 &= (2bc - b^2 - c^2) \cdot 1 = \\
 &= (-2bc + b^2 + c^2) \cdot (-1)
 \end{aligned}$$

я с друзьями на алгебре



$$(x+y)^2 = x^2 + 2xy + y^2$$

$$(x-y)^2 = x^2 - 2xy + y^2$$

$$(x+y)^3 = x^3 + 3x^2y + 3xy^2 + y^3$$

$$(x-y)^3 = x^3 - 3x^2y + 3xy^2 - y^3$$

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

$$x^2 + y^2 = \dots$$

$$x^3 - y^3 = (x-y)(x^2 + xy + y^2)$$

$$x^3 + y^3 = (x+y)(x^2 - xy + y^2)$$

$$x^2 + xy + y^2 = \dots$$

$$x^2 - xy + y^2 = \dots$$

$$(x+y)^4 =$$

$$x^4 - y^4 =$$

$$x^4 + y^4 =$$

$$(x^2)^3 = x^2 \cdot x^2 \cdot x^2 = x \cdot x \cdot x \cdot x \cdot x \cdot x = x^6$$

$$x^2 \cdot x^3 = x \cdot x \cdot x \cdot x \cdot x = x^5$$

$$\begin{aligned}
 36u^2 - 12uv + v^2 &= \\
 &= 6^2u^2 - 2 \cdot 6u \cdot v + v^2 = \\
 &= (6u)^2 - 2 \cdot 6u \cdot v + v^2 = \\
 &= (6u - v)^2
 \end{aligned}$$

$$\begin{aligned}
 q^{200}(a+b)^{100} - \\
 t^{400}u^{1000} &= \\
 (q^{100}(a+b)^{50})^2 - \\
 - (t^{200}u^{500})^2
 \end{aligned}$$

$$\begin{aligned}
 4x^2 + 4x + 1 &= \\
 &= (2x)^2 + 2 \cdot (2x) \cdot 1 + 1^2 = \\
 &= (2x+1)^2
 \end{aligned}$$

$$\begin{aligned}
 25p^2 - 49 &= (5p)^2 - 7^2 = \\
 &= (5p-7)(5p+7)
 \end{aligned}$$

$$\begin{aligned}
 64t^2 + 32t + 4 &= \\
 &= (8t)^2 + 2 \cdot 8t \cdot 2 + 2^2 = \\
 &= (8t)^2 + 2 \cdot (8t) \cdot 2 + 2^2 = \\
 &= (8t+2)^2
 \end{aligned}$$