

я с друзьями на алгебре

Разложить на множители

- 1)(*) $x^4 + 4 = \dots$
- 2)(*) $2bc + a^2 - b^2 - c^2 = \dots$
- 3)(*) $x^4 - 21x^2 + 4 = \dots$
- 4)(**) $x^3 + y^3 + z^3 - 3xyz = \dots$
- 5)(*) $(x + y + z)^3 - x^3 - y^3 - z^3 = \dots$
- 6)(*) $x^4 + x^2y^2 + y^4 = \dots$
- 7)(*) $a^4 - 2a^3 + a^2 - 1 = \dots$
- 8)(*) $c^8 - c^4 - 2c^2 - 1 = \dots$
- 9)(*) $8x^3 + y^3 + 6y^2 + 12y + 8 = \dots$



$()^2$ - число

$$\begin{aligned} x^2+2xy+y^2 &= (x+y)^2 \\ x^2-2xy+y^2 &= (x-y)^2 \\ x^2-y^2 &= (x-y)(x+y) \end{aligned}$$

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$$\begin{aligned} 6)(*) \quad x^4 + x^2y^2 + y^4 &= \\ (x^2)^2 + (y^2)^2 + x^2y^2 & \\ (x^2)^2 + 2(x^2)(y^2) + (y^2)^2 - 2(x^2)(y^2) + x^2y^2 &= (x^2+y^2)^2 - \\ (x^2)(y^2) &= (x^2+y^2)^2 - (xy)^2 = \\ ((x^2+y^2)-xy) * ((x^2+y^2) + xy) &= \\ (x^2+y^2-xy) * (x^2+y^2+xy) & \end{aligned}$$

$$\begin{aligned} (x^2)^2 - 2(x^2)(y^2) + (y^2)^2 + 2(x^2)(y^2) + x^2y^2 &= \\ (x^2-y^2)^2 + 3(x^2)(y^2) & \end{aligned}$$

тупик

$$\begin{aligned} 7)(*) \quad a^4 - 2a^3 + a^2 - 1 &= (a^2)^2 - 2(a^2)(a) + a^2 - 1 = (a^2-a)^2 - 1^2 = \\ = ((a^2-a)-1)((a^2-a)+1) &= (a^2-a-1)(a^2-a+1) \end{aligned}$$

$$\begin{aligned} (5+x)^2 - (a^2-a)^2 &= ((5+x)-(a^2-a))((5+x)+(a^2-a)) = (5+x-a^2+a)(5+x+a^2-a) \\ 1^2 - (a^2-a)^2 &= (1-a^2-a)(1+a^2-a) \text{ неверно} \end{aligned}$$

$$\begin{aligned} 8)(*) \quad c^8 - c^4 - 2c^2 - 1 &= (c^4)^2 - (c^2)^2 - 2c^2 - 1 = \\ = (c^4 - c^2)(c^4 + c^2) - 2c^2 - 1^2 &= \text{тупик} \end{aligned}$$

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

$$x^2-2xy+y^2$$

$$\begin{aligned} -1 &= (-1)*1 = (-1)*1*1 = \\ &= (-1)*1^2 = -1^2 \\ -5 &= (-1)*5 \end{aligned}$$

$$(-1)^2$$

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

$$\begin{aligned} -(a-b) &= (-1)*(a+(-1)*b) = \\ &= (-1)*a + (-1)*(-1)*b = \\ &= -a + b \end{aligned}$$