

519. Представьте многочлен в виде квадрата суммы:

- | | |
|----------------------------|-----------------------------|
| а) $x^2 + 2xy + y^2$; | б) $a^2 + 4ab + 4b^2$; |
| в) $9m^2 + 6mn + n^2$; | г) $16p^2 + 40pq + 25q^2$; |
| д) $x^2 + 2x + 1$; | е) $9 + 6a + a^2$; |
| ж) $16 + 8p + p^2$; | з) $4m^2 + 9n^2 + 12mn$; |
| и) $x^4 + 2x^2y^3 + y^6$; | к) $a^6 + 2a^3b^3 + b^6$. |

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

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

я с друзьями на алгебре



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

$$9m^2+6mn+n^2=(3m)^2+2*(3m)n+n^2=(3m+n)^2$$

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

$$16+8p+p^2=4^2+2*4p+p^2=(4+p)^2$$

$$x^4+2x^2y^3+y^6=(x^2)^2+2(x^2)(y^3)+(y^3)^2=(x^2+y^3)^2$$

$$a^2+4ab+4b^2=a^2+2*2ab+(2b)^2=a^2+2a*2b+(2b)^2=(a+2b)^2$$

$$16p^2+40pq+25q^2=(4p)^2+2*20pq+(5q)^2=(4p)^2+2*4p*5q+(5q)^2=(4p+5q)^2$$

$$9+6a+a^2=3^2+2*3a+a^2=(3+a)^2$$

$$4m^2+9n^2+12mn=4m^2+12mn+9n^2=(2m)^2+2*6mn+(3n)^2=$$

$$=(2m)^2+2*2m*3n+(3n)^2=(2m+3n)^2$$

$$a^6+2a^3b^3+b^6=(a^3)^2+2a^3*b^3+(b^3)^2=(a^3+b^3)^2$$

$$a^2+4ac+4c^2=a^2+2*2ac+(2c)^2=a^2+2a*2c+(2c)^2=(a+2c)^2$$

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

$$a^2c^2+2acd+d^2=(ac)^2+2acd+d^2=(ac+d)^2$$

$$9+6x+x^2=3^2+2*3x+x^2=(3+x)^2$$

523. Выясните, является ли многочлен квадратом какого-либо двучлена:

- | | |
|----------------------------|---------------------|
| а) $a^2 + 4ac + 4c^2$; | б) $1 + x^2 + 2x$; |
| в) $a^2c^2 + 2acd + d^2$; | г) $9 + 6x + x^2$. |

Представьте многочлен в виде квадрата двучлена:

а) $a^2 - 2ab + b^2$;

б) $4x^2 - 4xy + y^2$;

в) $9m^2 + 6m + 1$;

г) $25 - 30c + 9c^2$;

д) $16p^2 - 56pq + 49q^2$;

е) $100a^2 + 25b^2 + 100ab$;

ж) $x^4 - 6x^2y + 9y^2$;

з) $16 + 9x^6 - 24x^3$.

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

$$4x^2-4xy+y^2=(2x)^2-2*2xy+y^2=(2x-y)^2$$

$$9m^2+6m+1=(3m)^2+2*3m*1+1^2=(3m+1)^2$$

$$25-30c+9c^2=5^2-2*5*3c+(3c)^2=5^2-2*5*3c+(3c)^2=(5-3c)^2$$

$$16p^2-56pq+49q^2=(4p)^2-2*28pq+(7q)^2=(4p)^2-2*4p*7q+(7q)^2=$$

$$=(4p-7q)^2$$

$$100a^2+25b^2+100ab=(10a)^2+100ab+25b^2=(10a)^2+2*50ab+(5b)^2=$$

$$=(10a+5b)^2$$

$$x^4-6x^2y+9y^2=(x^2)^2-2*3x^2*y+(3y)^2=$$

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

$$16+9x^6-24x^3=4^2-24x^3+9x^6=$$

$$=4^2-2*12x^3+(3x^3)^2=4^2-2*4*3x^3+(3x^3)^2=(4-3x^3)^2$$