

# ***Разложение многочленов на множители***

**Учитель математики  
МКОУ « Москаленский лицей»  
Бадюк Ольга Ярославна**



# Способы разложения многочленов на множители

1. Вынесение общего множителя за скобки.
2. Способ группировки.
3. Разложение с помощью формул сокращенного умножения.



# Вынесение общего множителя за скобки

Распределительное свойство

умножения  $ab + ac - ad = a(b + c + d)$

$$5a + 5p = 5(a + p)$$

$$ax - ay = a(x - y)$$

$$4x + 5xy - 2x = x(4 + 5y - 2)$$



# Разложи на множители

## Устно

$6m + 6n$

$4 - 12x$

$-mn - mp$

$2b + 2c$

$9m + 6n$

$3 + 9y$

$-2a + 3ab$

$10x - 5y$

$5ab - 5ac$

$3x + 3y$

$8a - 16$

$-6 + 6a$

$4r - 4q$

$2 - 2b$

$5x - 15$



# Разложи на множители

## Письменно

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$$10x^3 + 5x^2$$

$$8a^4 - 12a^2$$

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

$$9a^5 - 12a^4$$

$$ab^2 + a^2b^3$$

$$m^2b + mb^2$$

$$3ab^2 + 6ba^2$$

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$$a^m + a^{m+1}$$

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# Формулы сокращенного умножения

•Письменно

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$$8a^4 - 12a^2$$

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

$$9a^5 - 12a^4$$

$$ab^2 + a^2b^3$$

$$m^2b^3 + mb^2$$

$$3ab^2 + 6ba^2$$

$$18ab^2 - 9b^4$$

$$a^m + a^{m+1}$$



# Смотри , не ошибись

Письменно

100

В

10

$$10x^3 + 5x^4$$

Письменно

$$10x^3 + 5x^2$$

$$8a^4 - 12a^2$$

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

$$9a^5$$

$$ab^2 + a^2b^3$$

$$m^2b^3 + mb^2$$

$$3ab^2 + 6ba^2$$

$$18ab^2 - 9b^4$$

$$a^m + a^{m+1}$$

$$8a^4 - 12a^2$$

10

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

7y

$$9a^5 - 12a^4$$

Письменно

$$10x^3 + 5x^2$$

$$8a^4 - 12a^2$$

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$$3ab^2 + 6ba^2$$

$$18ab^2 - 9b^4$$

$$a^m + a^{m+1}$$

$$ab^4 + a^4b^3$$

$$m^2b^3 + mb^2$$

$$3ab^2 + 6ba^2$$

100

42x

$$18aby - 9b^4$$

$$a^m + a^{m+1}$$



# Найди ошибку

Письменно

$$10x^3 + 5x^2$$

$$8a^4 - 12a^2$$

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

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$$ab^2 + a^2b^3$$

$$m^2b^3 + mb^2$$

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**-6ax**





# Разложи на множители

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# Разложи на множители

Письменно

$$(m-n-p)(m-n+p)$$

$$(x+3y-z)(x+3y+z)$$

Письменно

$$10x^3 + 5x^2$$

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$$a^m + a^{m+1}$$

9

$$(4 + 8b - 2a)(4 - 8b + 16a)$$

Письменно

$$ab^2 + a^2b^3$$

$$m^2b^3 + mb^2$$

$$3ab^2 + 6ba^2$$

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1



## Способ группировки

$$10ay - 5cy + 2ax - cx =$$

$$= (10ay - 5cy) + (2ax - cx) =$$

$$= 5y(2a - c) + x(2a - c) =$$

$$= (2a - c)(5y + x)$$



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$$15y^3 - 5y$$

$$9a^5 - 12a^4$$

$$(x + y)(2a + 1)$$

$$(x + y)(5a - 1)$$

$$(m + n)(a + b)$$

$$(a - x)(5a - 7)$$

$$(a + b)(3x - 4y)$$

Письменно

$$10x^3 + 5x^2 = x^2(10x + 5) = 5x^2(2x + 1)$$

$$8a^4 - 12a^2 = 4a^2(2a^2 - 3) = 4a^2(2a^2 + a^2 - 3) = 4a^2(3a^2 - 3) = 12a^2(a^2 - 1) = 12a^2(a - 1)(a + 1)$$

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

$$15y^3 - 5y = 5y(y^2 - 1) = 5y(y - 1)(y + 1)$$

$$9a^5 - 12a^4 = 3a^4(3a - 4)$$

$$a^2 + a^2 b^3 = a^2(1 + b^3) = a^2(1 + b)(1 - b + b^2)$$

$$m^2 b^3 + mb^2 = mb^2(m + 1)$$

$$3ab^2 + 6ba^2 = 3ab^2(1 + 2a)$$

$$18ab^2 - 9b^4 = 9b^2(2a - b^2)$$

$$a^m + a^{m+1} = a^m(1 + a)$$



# Примени различные способы

• Письменно

$$10x^3 + 5x^2$$

$$8a^4 - 12a^2$$

$$3m^2 + 6m^3$$

$$15y^3 - 5y$$

$$9a^5 - 12a^4$$

$$5(a - y)(a + y)$$

Письменно

$$10x^3 + 5x^2$$
$$8a^4 - 12a^2$$
$$3m^2 + 6m^3$$
$$15y^3 - 5y$$
$$9a^5 - 12a^4$$
$$ab^2 + a^2b^3$$
$$m^2b^3 + mb^2$$
$$18ab^2 - 9b^4$$
$$am + a^{m+1}$$

Письменно

$$10x^3 + 5x^2$$
$$8a^4 - 12a^2$$
$$3m^2 + 6m^3$$
$$15y^3 - 5y$$
$$9a^5 - 12a^4$$
$$3ab^2 + 6ba^2$$
$$m^2b^3 + mb^2$$
$$18ab^2 - 9b^4$$
$$am + a^{m+1}$$

$$(3 - x + y)(3 + x - y)$$



**Молодцы!**

**Спасибо за работу.**

