

Ejercicios de factorización de polinomios cuando sus términos tienen un monomio factor común.

1 $m^5 - 2m^2 + 6m =$ $m(m^4 - 2m + 6)$	2 $X^2 - 8x^3 - 7x^4 =$ $x^2(8x - 7x^2)$	3 $2x + x^2 =$ $x(2 + x)$
4 $25y^3 - 15y^2 + 10y =$ $5y(5y^2 - 3y + 2)$	5 $35m^2n - 42m^4n^2 + 21m^3n^3 =$ $7m^2n(5 - 6m^2n + 3mn^2)$	6 $b^2 + 3b =$ $b(b + 3)$
7 $54x^2y^3 - 18xy^2 + 36ax^3y^5 =$ $6xy^2(9xy - 3 + 6ax^2y^3)$	8 $ax + bx =$ $x(a + b)$	9 $4x - 24y =$ $2(2x - 12y)$
10 $15xy^3 - 35x^2y + 20x^3y^2 =$ $5xy(3y^2 - 7x + 4x^2y)$	11 $2a - 8b =$ $2(a - 4b)$	12 $6xy - 3y^2 =$ $3y(2x - y)$
13 $56ax^5 - 14x^2y^2 - 28ax^3 =$ $7x^2(8ax^3 - 2y^2 - 4ax)$	14 $8m^8 - 12m^4 =$ $4m^4(2m^4 - 3)$	15 $a(x + 2) + b(x + 2) =$ $(x + 2)(a + b)$
16 $ax^2 - bx^2 + 6x^2 =$ $x^2(a - b + 6)$	17 $na - ma =$ $a(n - m)$	18 $2(y - 3) - y(y - 3) =$ $(y - 3)(2 - y)$
19 $5x(b - 6) - 4(b - 6) =$ $(b - 6)(5x - 4)$	20 $7a(a - b) + a - b =$ $a - b(7a)$	21 $a(n + 6) + n + 6 =$ $n + 6(a)$

$$\frac{2x}{1} + \frac{x^2}{1} = x$$

Capítulo 9: Suma y diferencia de cuadrados
 1. Sacar raíz cubica de los términos
 2. abrir 2 paréntesis

Matemáticas I

Ejercicios de factorización por diferencia de cuadrados

$y^2 - 81 = (y+9)(y-9)$	$36x^2 - 1 = (6x+1)(6x-1)$	$ax^2 - 16a = a(x+4)(x-4)$
$16 - y^2 = (4+y)(4-y)$	$64b^2 - 25 = (8b+5)(8b-5)$	$bx^2 - b = b(x)(x)$
$b^2 - 1 = (b+1)(b-1)$	$16b^2 - 100y^2 = (4b+10y)(4b-10y)$	$64z^2 - 81 = (8z+9)(8z-9)$
$100 - w^2 = (10+w)(10-w)$	$y^2 - 4 = (y+2)(y-2)$	$36m^2 - 1 = (6m+1)(6m-1)$
$25 - 49y^2 = (5+7y)(5-7y)$	$25x^2 - 36 = (5x+6)(5x-6)$	$4 - 49a^2b^2 = (2+7ab)(2-7ab)$
$a^4 - 9 = (a^2+3)(a^2-3)$	$4a^2 - 1 = (2a+1)(2a-1)$	$y^6 - 16 = (y^3+4)(y^3-4)$
$x^2(x+3) - y^2(x+3) = (x+3)(x+y)(x-y)$	$a^2(m-n) - 4(m-n) = (m-n)(a+2)(a-2)$	$b^2(x-y) - (x-y) = (x-y)(b+1)(b-1)$
$a^2(a^2 - 1) - 9(a^2 - 1) = (a^2 - 1)(a+3)(a-3)$	$m^2(1-x) - y^2(1-x) = (1-x)(m+y)(m-y)$	$a^3 + a = a(a^2 + 1)$

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

$$= a(a+1)(a-1)$$

Car el número que sumado de "b" y multiplicado
"ac"

Caso 7: Suma y diferencia de cuadrados

1. Sacar raíz cubica de los términos
2. abrir 2 paréntesis y colocar las raíces en el
3. Poner su equivalente de b

Matemáticas I

Ejercicios de factorización de trinomio cuadrado perfecto

No es trinomio perf

$$36a^2 - 3ab + 25b^2 =$$

$$\sqrt{36a^2} = 6a$$

$$\sqrt{25b^2} = 5b$$

$$2(6a)(5b) = 60ab$$

$$y^2 - 10y + 25 = (y-5)^2$$

$$\sqrt{y^2} = y \quad \sqrt{25} = 5$$

$$2(y)(5)$$

$$n^2 + 16n + 64 =$$

$$\sqrt{n^2} = n \quad \sqrt{64} = 8$$

$$2(n)(8) = 16n$$

$$(n+8)^2$$

$$n^2 + 18n + 64 =$$

$$\sqrt{n^2} = n \quad \sqrt{64} = 8$$

$$2(n)(8) = 16n$$

$$(n+8)^2$$

$$x^2 - 12xy + 36y^2 =$$

$$\sqrt{x^2} = x \quad \sqrt{36y^2} = 6y$$

$$2(x)(6y) = 12xy$$

$$(x-6y)^2$$

$$b^2 - 12b + 36 =$$

$$\sqrt{b^2} = b \quad \sqrt{36} = 6$$

$$2(b)(6) = 12b$$

$$(b-6)^2$$

$$x^2y^2 + 8xy + 16$$

$$\sqrt{x^2y^2} = xy \quad \sqrt{16} = 4$$

$$2(xy)(4) = 8xy$$

$$(xy+4)^2$$

$$b^2 - 10b + 36 =$$

$$\sqrt{b^2} = b \quad \sqrt{36} = 6$$

$$2(b)(6) = 12b$$

$$(b-6)^2$$

$$100x^2 - 80x + 16 =$$

$$\sqrt{100x^2} = 10x \quad \sqrt{16} = 4$$

$$2(10x)(4) = 80x$$

$$(10x-4)^2$$

$$25m^2 - 10mn + n^2 =$$

$$\sqrt{25m^2} = 5m \quad \sqrt{n^2} = n$$

$$2(5m)(n) = 10mn$$

$$(5m-n)^2$$

$$10x^2 - 10x + 16 =$$

$$\sqrt{10x^2} = \sqrt{10}x \quad \sqrt{16} = 4$$

$$2(\sqrt{10}x)(4) = 8\sqrt{10}x$$

$$(10x-4)^2$$

$$4x^2 - 4xy + y^2 =$$

$$\sqrt{4x^2} = 2x \quad \sqrt{y^2} = y$$

$$2(2x)(y) = 4xy$$

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

$$9x^4 - 30x^3y + 25xy$$

$$\sqrt{9x^4} = 3x^2 \quad \sqrt{25xy} = 5\sqrt{xy}$$

$$2(3x^2)(5\sqrt{xy}) = 30x^2\sqrt{xy}$$

$$(3x^2-5\sqrt{xy})^2$$

$$36a^2 - 60ab + 25b^2 =$$

$$\sqrt{36a^2} = 6a \quad \sqrt{25b^2} = 5b$$

$$2(6a)(5b) = 60ab$$

$$(6a-5b)^2$$

$$49x^2 - 42xy + 9y^2 =$$

$$\sqrt{49x^2} = 7x \quad \sqrt{9y^2} = 3y$$

$$2(7x)(3y) = 42xy$$

$$(7x-3y)^2$$

$$36x^2 - 72x + 81$$

$$\sqrt{36x^2} = 6x \quad \sqrt{81} = 9$$

$$2(6x)(9) = 108x$$

$$(6x-9)^2$$

x = No aplica
√ = Si aplica

Ejercicios de factorización de trinomios cuadráticos de la forma $x^2 + bx + c$

$36a^2 - 60ab + 25 =$ $(6a-5)(6a-5)$	$x^2 + 5x + 6 =$ $(x+2)(x+3)$ $2+3=5$ $2 \cdot 3 = 6$	$10x^2 - 28x + 16 =$ $(2x-4)(5x-4)$
$x^2 - 6x - 27 =$ $(x+3)(x-9)$	$b^2 - 12b + 36 =$ $(b-6)(b-6)$	$y^2 + y - 20 =$ $(y+5)(y-4)$
$n^2 + 16n + 64 =$ $(n+8)(n+8)$	$x^2 + x - 20 =$ $(x+5)(x-4)$	$n^2 - 4n + 3 =$ $(n-3)(n-1)$
$x^2 - 12y + 36 =$ $(x-6)(x-6)$	$m^2 - 8m + 15 =$ $(m-6)(m-3)$	$x^2 - 1x - 12 =$ $(x+3)(x-4)$
$b^2 + 7b + 10 =$ $(b+5)(b+2)$	$y^2 - 7y - 18 =$ $(y+2)(y-9)$	$a^2 - a - 2 =$ $(a+1)(a-2)$
$y^2 - 10y + 25 =$ $(y-5)(y-5)$	$x^2 + 11x + 28 =$ $(x+7)(x+4)$	$y^2 + 9y - 22 =$ $(y+11)(y-2)$
$x^2 - 11x + 24 =$ $(x-8)(x-3)$	$a^2 - 6a - 7 =$ $(a+1)(a-7)$	$x^2 - 4x - 5 =$ $(x+1)(x-5)$

Matemáticas I

Ejercicios de factorización de trinomios cuadráticos de la forma $ax^2 + bx + c$ por agrupación, con a , b y c enteros y a diferente de cero.

$$6x^2 - 13x + 3$$

$$(6x - 3)(x - 1) \\ = 6x^2 - 6x - 3x + 3$$

$$4x^2 - 8x + 3$$

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

$$2y^2 + 3y - 9$$

$$(2y - 3)(y + 3)$$

$$3n^2 - n - 10$$

$$(3n + 2)(n - 5)$$

$$2x^2 - 5x + 2$$

$$(2x - 1)(x - 2)$$

$$12m^2 + 11m - 15$$

$$(3m - 5)(4m + 3)$$

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

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

$$3p^2 + 20p + 2$$

$$(3p + 1)(p + 2)$$

$$2b^2 - b - 3$$

$$(2b + 3)(b - 1)$$

$$7x^2 - 8x + 2$$

$$(7x - 2)(x - 1)$$

$$8x^2 - 2x - 3$$

$$(8x + 1)(x - 3)$$

$$6y^2 - 23y - 4$$

$$(2y - 1)(3y - 4)$$

Ejercicios de factorización de suma y diferencia de cubos

$$a^3 - 27 = (a)^3 - (3)^3$$

$$(a-3)(a^2+3a+9)$$

$$\sqrt[2]{8a^3} - \sqrt[6]{216b^3} =$$

$$(2a-6)(4a^2+12a+36)$$

$$\sqrt[3]{x^3+64} = (x+4)(x^2-4x+16)$$

$$\sqrt[4]{62y^3} - 1$$

No tiene raíz cubica

$$\sqrt{x} - \sqrt{y} =$$

$$(x-y)(1+ly+y^2)$$

$$\sqrt[27]{125y^4} =$$

$$(3-5y^2)(4+15y^2+25y^4)$$

$$\sqrt[n]{n^3+25} =$$

$$(n+5)(n^2+5n+25)$$

$$\sqrt[8]{b^3-216} =$$

$$(8b^2-6)(4b^4+12b^2+36)$$