







**Algebraic expansion and factorization laws (Productos Notables):**

|  | Examples   |
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| <p><b>Distributive law</b></p> <p><br/> <math>c(a + b) = ca + cb</math><br/> <br/>                     Factorising with common factors</p>   | $3x(4x + 6y) = 12x^2 + 18xy$   |
| <p>The product (a+b)(c+d)</p> <p><math>(a + b)(c + d) = ac + ad + bc + bd</math></p>   | $(3x + 2y)(4x - 5y) =$<br>$12x^2 - 15xy + 8xy - 10y^2 =$<br>$12x^2 - 7xy - 10y^2$        |
| <p><b>Difference of two squares</b></p> <p><br/> <math>(a + b)(a - b) = a^2 - b^2</math><br/> <br/>                     Difference of two squares factorization</p>  | $(3x + 5y)(3x - 5y) = 9x^2 - 25y^2$  |
| <p><b>Perfect squares expansion</b></p> <p><br/> <math>(a + b)^2 = a^2 + 2ab + b^2</math><br/> <math>(a - b)^2 = a^2 - 2ab + b^2</math><br/> <br/>                     Perfect squares factorization</p> | $(2x - 3y)^2 = 4x^2 - 12xy + 9y^2$   |
| <p>Perfect cubes expansion</p> <p><math>(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3</math><br/> <math>(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3</math></p>   | $(x + 2y)^3 = x^3 + 6x^2y + 12xy^2 + 8y^3$<br>$(x - 2y)^3 = x^3 - 6x^2y + 12xy^2 - 8y^3$ |