



Exercice n°1 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(6y + 6)^2 =$$

$$(3 + 8v)^2 =$$

$$(4x + 5)^2 =$$

$$(10y + 10)^2 =$$

$$(2 + 3v)^2 =$$

$$(4x + 9)^2 =$$

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

$$(10 + 8t)^2 =$$

$$(7t + 5)^2 =$$

$$(t + 5)^2 =$$

Exercice n°2 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(4v - 2)^2 =$$

$$(8t - 9)^2 =$$

$$(3x - 10)^2 =$$

$$(10 - 2t)^2 =$$

$$(8 - 7t)^2 =$$

$$(10y - 2)^2 =$$

$$(2 - 4u)^2 =$$

$$(9 - 3x)^2 =$$

$$(5 - u)^2 =$$

$$(9t - 9)^2 =$$

Exercice n°3 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(2t - 7)(2t + 7) =$$

$$(4x + 10)(4x - 10) =$$

$$(5x - 9)(9 + 5x) =$$

$$(x - 4)(x + 4) =$$

$$(6 + 9t)(9t - 6) =$$

$$(6x - 8)(6x + 8) =$$

$$(2v + 8)(2v - 8) =$$

$$(2x - 4)(4 + 2x) =$$

$$(5x - 10)(5x + 10) =$$

$$(3y - 8)(3y + 8) =$$

Exercice n°4 : Développer les expressions suivantes.

$$(3x - 6)^2 =$$

$$(9 - t)^2 =$$

$$(7 + 9y)(9y - 7) =$$

$$(10 + 6x)(6x - 10) =$$

$$(5y - 7)^2 =$$

$$(5 + 4t)^2 =$$

$$(9 + 3v)^2 =$$

$$(2v - 4)^2 =$$

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

$$(7x + 8)(7x - 8) =$$

Exercice n°5 : Développer les expressions suivantes.

$$(x + 2)^2 - 16 =$$

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

$$(7x - 5)^2 + (x - 3)^2 =$$

$$(x - 3)(x + 3) - (3x + 2)(3x - 2) =$$

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

$$(5x - 2)^2 - (-2x + 3)^2 =$$

$$(11 + 8x)^2 - 3x(2x + 5) =$$

$$(2x - 5)^2(x + 4) =$$

$$(2x - 3)(2x + 3) + (9x - 7)^2 =$$

$$(7x + 5)^2 - (x - 5)(9 - 3x) - ((x - 1)^2 + 7x(2 + x)) =$$



Correction

Exercice n°1 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(6y + 6)^2 = (6y)^2 + 2 \times 6y \times 6 + 6^2 \\ = 36y^2 + 72y + 36$$

$$(4x + 5)^2 = (4x)^2 + 2 \times 4x \times 5 + 5^2 \\ = 16x^2 + 40x + 25$$

$$(2 + 3v)^2 = 2^2 + 2 \times 2 \times 3v + (3v)^2 \\ = 9v^2 + 12v + 4$$

$$(3 + 9x)^2 = 3^2 + 2 \times 3 \times 9x + (9x)^2 \\ = 81x^2 + 54x + 9$$

$$(7t + 5)^2 = (7t)^2 + 2 \times 7t \times 5 + 5^2 \\ = 49t^2 + 70t + 25$$

$$(3 + 8v)^2 = 3^2 + 2 \times 3 \times 8v + (8v)^2 \\ = 64v^2 + 48v + 9$$

$$(10y + 10)^2 = (10y)^2 + 2 \times 10y \times 10 + 10^2 \\ = 100y^2 + 200y + 100$$

$$(4x + 9)^2 = (4x)^2 + 2 \times 4x \times 9 + 9^2 \\ = 16x^2 + 72x + 81$$

$$(10 + 8t)^2 = 10^2 + 2 \times 10 \times 8t + (8t)^2 \\ = 64t^2 + 160t + 100$$

$$(t + 5)^2 = t^2 + 2 \times t \times 5 + 5^2 \\ = t^2 + 10t + 25$$

Exercice n°2 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(4v - 2)^2 = (4v)^2 - 2 \times 4v \times 2 + 2^2 \\ = 16v^2 - 16v + 4$$

$$(3x - 10)^2 = (3x)^2 - 2 \times 3x \times 10 + 10^2 \\ = 9x^2 - 60x + 100$$

$$(8 - 7t)^2 = 8^2 - 2 \times 8 \times 7t + (7t)^2 \\ = 49t^2 - 112t + 64$$

$$(2 - 4u)^2 = 2^2 - 2 \times 2 \times 4u + (4u)^2 \\ = 16u^2 - 16u + 4$$

$$(5 - u)^2 = 5^2 - 2 \times 5 \times u + u^2 \\ = u^2 - 10u + 25$$

$$(8t - 9)^2 = (8t)^2 - 2 \times 8t \times 9 + 9^2 \\ = 64t^2 - 144t + 81$$

$$(10 - 2t)^2 = 10^2 - 2 \times 10 \times 2t + (2t)^2 \\ = 4t^2 - 40t + 100$$

$$(10y - 2)^2 = (10y)^2 - 2 \times 10y \times 2 + 2^2 \\ = 100y^2 - 40y + 4$$

$$(9 - 3x)^2 = 9^2 - 2 \times 9 \times 3x + (3x)^2 \\ = 9x^2 - 54x + 81$$

$$(9t - 9)^2 = (9t)^2 - 2 \times 9t \times 9 + 9^2 \\ = 81t^2 - 162t + 81$$

Exercice n°3 : Développer les expressions suivantes à l'aide de l'identité remarquable

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

$$(2t - 7)(2t + 7) = (2t)^2 - 7^2 \\ = 4t^2 - 49$$

$$(5x - 9)(9 + 5x) = (5x)^2 - 9^2 \\ = 25x^2 - 81$$

$$(6 + 9t)(9t - 6) = (9t)^2 - 6^2 \\ = 81t^2 - 36$$

$$(2v + 8)(2v - 8) = (2v)^2 - 8^2$$

$$(4x + 10)(4x - 10) = (4x)^2 - 10^2 \\ = 16x^2 - 100$$

$$(x - 4)(x + 4) = x^2 - 4^2 \\ = x^2 - 16$$

$$(6x - 8)(6x + 8) = (6x)^2 - 8^2 \\ = 36x^2 - 64$$

$$(2x - 4)(4 + 2x) = (2x)^2 - 4^2$$

$$= 4v^2 - 64$$

$$(5x - 10)(5x + 10) = (5x)^2 - 10^2 \\ = 25x^2 - 100$$

$$= 4x^2 - 16$$

$$(3y - 8)(3y + 8) = (3y)^2 - 8^2 \\ = 9y^2 - 64$$

Exercice n°4 : Développer les expressions suivantes.

$$(3x - 6)^2 = (3x)^2 - 2 \times 3x \times 6 + 6^2 \\ = 9x^2 - 36x + 36$$

$$(7 + 9y)(9y - 7) = (9y)^2 - 7^2 \\ = 81y^2 - 49$$

$$(5y - 7)^2 = (5y)^2 - 2 \times 5y \times 7 + 7^2 \\ = 25y^2 - 70y + 49$$

$$(9 + 3v)^2 = 9^2 + 2 \times 9 \times 3v + (3v)^2 \\ = 9v^2 + 54v + 81$$

$$(x + 2)^2 = x^2 + 2 \times x \times 2 + 2^2 \\ = x^2 + 4x + 4$$

$$(9 - t)^2 = 9^2 - 2 \times 9 \times t + t^2 \\ = t^2 - 18t + 81$$

$$(10 + 6x)(6x - 10) = (6x)^2 - 10^2 \\ = 36x^2 - 100$$

$$(5 + 4t)^2 = 5^2 + 2 \times 5 \times 4t + (4t)^2 \\ = 16t^2 + 40t + 25$$

$$(2v - 4)^2 = (2v)^2 - 2 \times 2v \times 4 + 4^2 \\ = 4v^2 - 16v + 16$$

$$(7x + 8)(7x - 8) = (7x)^2 - 8^2 \\ = 49x^2 - 64$$

Exercice n°5 : Développer les expressions suivantes.

$$(x + 2)^2 - 16 \\ = x^2 + 2 \times x \times 2 + 2^2 - 16 \\ = x^2 + 4x + 4 - 16 \\ = x^2 + 4x - 12$$

$$(7x - 5)^2 + (x - 3)^2 \\ = (7x)^2 - 2 \times 7x \times 5 + 5^2 + x^2 - 2 \times x \times 3 + 3^2 \\ = 49x^2 - 70x + 25 + x^2 - 6x + 9 \\ = 50x^2 - 76x + 34$$

$$(x + 3)^2 - (x + 1)^2 \\ = x^2 + 2 \times x \times 3 + 3^2 - (x^2 + 2 \times x \times 1 + 1^2) \\ = x^2 + 6x + 9 - (x^2 + 2x + 1) \\ = x^2 + 6x + 9 - x^2 - 2x - 1 \\ = 4x + 8$$

$$(11 + 8x)^2 - 3x(2x + 5) \\ = 11^2 + 2 \times 11 \times 8x + (8x)^2 - 3x \times 2x - 3x \times 5 \\ = 64x^2 + 176x + 121 - 6x^2 - 15x \\ = 58x^2 + 161x + 121$$

$$(2x - 3)(2x + 3) + (9x - 7)^2 \\ = (2x)^2 - 3^2 + (9x)^2 - 2 \times 9x \times 7 + 7^2 \\ = 4x^2 - 9 + 81x^2 - 126x + 49 \\ = 85x^2 - 126x + 40$$

$$(3x + 1)^2 - (x - 5)^2 \\ = (3x)^2 + 2 \times 3x \times 1 + 1^2 - (x^2 - 2 \times x \times 5 + 5^2)$$

$$\begin{aligned}
 &= 9x^2 + 6x + 1 - (x^2 - 10x + 25) \\
 &= 9x^2 + 6x + 1 - x^2 + 10x - 25 \\
 &= 8x^2 + 16x - 24
 \end{aligned}$$

$$\begin{aligned}
 &(x - 3)(x + 3) - (3x + 2)(3x - 2) \\
 &= x^2 - 3^2 - ((3x)^2 - 2^2) \\
 &= x^2 - 9 - (9x^2 - 4) \\
 &= x^2 - 9 - 9x^2 + 4 \\
 &= -8x^2 - 5
 \end{aligned}$$

$$\begin{aligned}
 &(5x - 2)^2 - (-2x + 3)^2 \\
 &= (5x)^2 - 2 \times 5x \times 2 + 2^2 - ((-2x)^2 - 2 \times 2x \times 3 + 3^2) \\
 &= 25x^2 - 20x + 4 - (4x^2 - 12x + 9) \\
 &= 25x^2 - 20x + 4 - 4x^2 + 12x - 9 \\
 &= 21x^2 - 8x - 5
 \end{aligned}$$

$$\begin{aligned}
 &(2x - 5)^2(x + 4) \\
 &= ((2x)^2 - 2 \times 2x \times 5 + 5^2)(x + 4) \\
 &= (4x^2 - 20x + 25)(x + 4) \\
 &= 4x^2 \times x + 4x^2 \times 4 - 20x \times x - 20x \times 4 + 25 \times x + 25 \times 4 \\
 &= 4x^3 + 16x^2 - 20x^2 - 80x + 25x + 100 \\
 &= 4x^3 - 4x^2 - 55x + 100
 \end{aligned}$$

$$\begin{aligned}
 &(7x + 5)^2 - (x - 5)(9 - 3x) - ((x - 1)^2 + 7x(2 + x)) \\
 &= (7x)^2 + 2 \times 7x \times 5 + 5^2 - (x \times 9 + x \times (-3x) - 5 \times 9 - 5 \times (-3x)) - (x^2 - 2x + 1 + 7x \times x) \\
 &= 49x^2 + 70x + 25 - (9x - 3x^2 - 45 + 15x) - (x^2 - 2x + 1 + 14x + 7x^2) \\
 &= 49x^2 + 70x + 25 - (-3x^2 + 24x - 45) - (8x^2 + 12x + 1) \\
 &= 49x^2 + 70x + 25 + 3x^2 - 24x + 45 - 8x^2 - 12x - 1 \\
 &= 44x^2 + 34x + 69
 \end{aligned}$$