

CALCUL LITTÉRAL - IDENTITES REMARQUABLES (Feuille 2)

EXERCICE 1 - Développer en utilisant l'identité remarquable qui convient :

$A = (x + 4)^2$	$B = (2 - x)^2$	$C = (x + 1)(x - 1)$
$D = (2x + 1)^2$	$E = (3 - 2x)^2$	$F = (7x + 5)^2$
$G = (5x + 6)(5x - 6)$	$H = (4 - 8x)^2$	$I = (3 + 4x)(3 + 4x)$
$J = (3 + x)(x - 3)$	$K = (2 + 9x)^2$	$L = (11x - 12)^2$

EXERCICE 2 - Développer puis réduire :

$Z = (x + 2)^2 + (3 - 2x)(3 + 2x)$ $Z = x^2 + 4x + 4 + 9 - 4x^2$ $Z = -3x^2 + 4x + 13$	$A = (x + 1)^2 + (x - 3)^2$
$B = (3 - x)^2 + (x + 5)^2$	$C = (x - 2)^2 + (x + 4)(x - 4)$
$D = (x + 1)(x - 1) + (x + 4)^2$	$E = (x - 5)^2 + (2x + 7)(2x - 7)$

EXERCICE 3 - Développer puis réduire :

$Z = (x + 2)^2 - (3 - 2x)(3 + 2x)$ $Z = x^2 + 4x + 4 - (9 - 4x^2)$ $Z = x^2 + 4x + 4 - 9 + 4x^2$ $Z = 5x^2 + 4x - 5$	$A = (2x + 1)^2 - (x + 3)^2$
$B = (2x + 3)^2 - (x - 7)(x + 7)$	$C = (x + 2)(x - 2) - (x - 3)^2$
$D = (x - 5)^2 - (2x - 7)(x - 5)$	$E = (3x + 1)(x - 2) - (2x - 3)^2$

EXERCICE 1 -

$A = (x + 4)^2$ $A = x^2 + 2 \times x \times 4 + 4^2$ $A = x^2 + 8x + 16$	$B = (2 - x)^2$ $B = 2^2 - 2 \times 2 \times x + x^2$ $B = 4 - 4x + x^2$	$C = (x + 1)(x - 1)$ $C = x^2 - 1^2$ $C = x^2 - 1$
$D = (2x + 1)^2$ $D = (2x)^2 + 2 \times 2x \times 1 + 1^2$ $D = 4x^2 + 4x + 1$	$E = (3 - 2x)^2$ $E = 3^2 - 2 \times 3 \times 2x + (2x)^2$ $E = 9 - 12x + 4x^2$	$F = (7x + 5)^2$ $F = (7x)^2 + 2 \times 7x \times 5 + 5^2$ $F = 49x^2 + 70x + 25$
$G = (5x + 6)(5x - 6)$ $G = (5x)^2 - 6^2$ $G = 25x^2 - 36$	$H = (4 - 8x)^2$ $H = 4^2 - 2 \times 4 \times 8x + (8x)^2$ $H = 16 - 64x + 64x^2$	$I = (3 - 4x)(3 + 4x)$ $I = 3^2 - (4x)^2$ $I = 9 - 16x^2$
$J = (3 + x)(x - 3)$ $J = x^2 - 3^2$ $J = x^2 - 9$	$K = (2 + 9x)^2$ $K = 2^2 + 2 \times 2 \times 9x + (9x)^2$ $K = 4 + 36x + 81x^2$	$L = (11x - 12)^2$ $L = (11x)^2 - 2 \times 11x \times 12 + 12^2$ $L = 121x^2 - 264x + 144$

EXERCICE 2 -

$Z = (x + 2)^2 + (3 - 2x)(3 + 2x)$ $Z = x^2 + 4x + 4 + 9 - 4x^2$ $Z = -3x^2 + 4x + 13$	$A = (x + 1)^2 + (x - 3)^2$ $A = x^2 + 2 \times x \times 1 + 1^2 + x^2 - 2 \times x \times 3 + 3^2$ $A = x^2 + 2x + 1 + x^2 - 6x + 9$ $A = 2x^2 - 4x + 10$
$B = (3 - x)^2 + (x + 5)^2$ $B = 3^2 - 2 \times 3 \times x + x^2 + x^2 + 2 \times x \times 5 + 5^2$ $B = 9 - 6x + x^2 + x^2 + 10x + 25$ $B = 2x^2 + 4x + 34$	$C = (x - 2)^2 + (x + 4)(x - 4)$ $C = x^2 - 2 \times x \times 2 + 2^2 + x^2 - 4^2$ $C = x^2 - 4x + 4 + x^2 - 16$ $C = 2x^2 - 4x - 12$
$D = (x + 1)(x - 1) + (x + 4)^2$ $D = x^2 - 1^2 + x^2 + 2 \times x \times 4 + 4^2$ $D = x^2 - 1 + x^2 + 8x + 16$ $D = 2x^2 + 8x + 15$	$E = (x - 5)^2 + (2x + 7)(2x - 7)$ $E = x^2 - 2 \times x \times 5 + 5^2 + (2x)^2 - 7^2$ $E = x^2 - 10x + 25 + 4x^2 - 49$ $E = 5x^2 - 10x - 24$

EXERCICE 3 -

$Z = (x + 2)^2 - (3 - 2x)(3 + 2x)$ $Z = x^2 + 4x + 4 - (9 - 4x^2)$ $Z = x^2 + 4x + 4 - 9 + 4x^2$ $Z = 5x^2 + 4x - 5$	$A = (2x + 1)^2 - (x + 3)^2$ $A = (2x)^2 + 2 \times 2x \times 1 + 1^2 - (x^2 + 2 \times x \times 3 + 3^2)$ $A = 4x^2 + 4x + 1 - (x^2 + 6x + 9)$ $A = 4x^2 + 4x + 1 - x^2 - 6x - 9$ $A = 3x^2 - 2x - 8$
$B = (2x + 3)^2 - (x - 7)(x + 7)$ $B = (2x)^2 + 2 \times 2x \times 3 + 3^2 - (x^2 - 7^2)$ $B = 4x^2 + 12x + 9 - (x^2 - 49)$ $B = 4x^2 + 12x + 9 - x^2 + 49$ $B = 3x^2 + 12x + 58$	$C = (x + 2)(x - 2) - (x - 3)^2$ $C = x^2 - 2^2 - (x^2 - 2 \times x \times 3 + 3^2)$ $C = x^2 - 4 - (x^2 - 6x + 9)$ $C = x^2 - 4 - x^2 + 6x - 9$ $C = 6x - 13$
$D = (x - 5)^2 - (2x - 7)(x - 5)$ $D = x^2 - 2 \times x \times 5 + 5^2 - (2x^2 - 10x - 7x + 35)$ $D = x^2 - 10x + 25 - 2x^2 + 10x + 7x - 35$ $D = -x^2 + 7x - 10$	$E = (3x + 1)(x - 2) - (2x - 3)^2$ $E = 3x^2 - 6x + x - 2 - [(2x)^2 - 2 \times 2x \times 3 + 3^2]$ $E = 3x^2 - 6x + x - 2 - [4x^2 - 12x + 9]$ $E = 3x^2 - 6x + x - 2 - 4x^2 + 12x - 9$ $E = -x^2 + 7x - 11$