

**CALCUL LITTÉRAL - IDENTITES REMARQUABLES (Feuille 1)**

**EXERCICE 1** - Donner le carré de chaque expression :

- a.  $(3x)^2 = 9x^2$     b.  $(2x)^2 = \dots$     c.  $(5x)^2 = \dots$     d.  $(6x)^2 = \dots$     e.  $(9x)^2 = \dots$   
 f.  $(7x)^2 = \dots$     g.  $(10t)^2 = \dots$     h.  $(4a)^2 = \dots$     i.  $(x^2)^2 = \dots$     j.  $(-5x)^2 = \dots$

**EXERCICE 2** - Réduire chaque produit :

- a.  $2 \times 3x \times 4 = 24x$     b.  $3 \times 5x \times 2x = \dots$     c.  $4 \times 2x \times 5 = \dots$     d.  $x \times 8 \times 2x = \dots$     e.  $3 \times x \times 2x = \dots$   
 f.  $7 \times 4 \times 2x = \dots$     g.  $2 \times 7x \times 3 = \dots$     h.  $3 \times 5x \times 2x = \dots$     i.  $2 \times 6x \times 3x = \dots$     j.  $4 \times 10x \times 6x = \dots$

**EXERCICE 3** - Développer en utilisant l'identité remarquable :  $(a + b)^2 = a^2 + 2ab + b^2$

$Z = (x + 3)^2$ $Z = x^2 + 2 \times x \times 3 + 3^2$ $Z = x^2 + 6x + 9$	$A = (3 + x)^2$	$B = (x + 5)^2$
$C = (2x + 1)^2$	$D = (1 + 3x)^2$	$E = (3x + 2)^2$
$F = (5x + 3)^2$	$G = (x^2 + 1)^2$	$H = (3 + 4x)^2$

**EXERCICE 4** - Développer en utilisant l'identité remarquable :  $(a - b)^2 = a^2 - 2ab + b^2$

$Z = (5 - x)^2$ $Z = 5^2 - 2 \times 5 \times x + x^2$ $Z = 25 - 10x + x^2$	$A = (x - 2)^2$	$B = (1 - 3x)^2$
$C = (3 - x)^2$	$D = (2x - 1)^2$	$E = (3 - 5x)^2$
$F = (3x - 2)^2$	$G = (4x - 3)^2$	$H = (4 - 3x^2)^2$

**EXERCICE 5** - Développer en utilisant l'identité remarquable :  $(a + b)(a - b) = a^2 - b^2$

$Z = (2x + 5)(2x - 5)$ $Z = (2x)^2 - 5^2$ $Z = 4x^2 - 25$	$A = (x + 2)(x - 2)$	$B = (x + 3)(x - 3)$
$C = (3x - 1)(3x + 1)$	$D = (2x + 1)(2x - 1)$	$E = (5 + 3x)(5 - 3x)$
$F = (3x - 2)(3x + 2)$	$G = (3 + 4x)(3 - 4x)$	$H = (4x^2 + 3)(4x^2 - 3)$

**EXERCICE 1 -**

- a.  $(3x)^2 = 9x^2$     b.  $(2x)^2 = 4x^2$     c.  $(5x)^2 = 25x^2$     d.  $(6x)^2 = 36x^2$     e.  $(9x)^2 = 81x^2$   
 f.  $(7x)^2 = 49x^2$     g.  $(10t)^2 = 100t^2$     h.  $(4a)^2 = 16a^2$     i.  $(x^2)^2 = x^4$     j.  $(-5x)^2 = 25x^2$

**EXERCICE 2 -**

- $2 \times 3x \times 4 = 24x$      $3 \times 5x \times 2x = 30x^2$      $4 \times 2x \times 5 = 40x$      $x \times 8 \times 2x = 16x^2$      $3 \times x \times 2x = 6x^2$   
 $7 \times 4 \times 2x = 56x$      $2 \times 7x \times 3 = 42x$      $3 \times 5x \times 2x = 30x^2$      $2 \times 6x \times 3x = 36x^2$      $4 \times 10x \times 6x = 240x^2$

**EXERCICE 3 -**

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

$Z = (x + 3)^2$ $Z = x^2 + 2 \times x \times 3 + 3^2$ $Z = x^2 + 6x + 9$	$A = (3 + x)^2$ $A = 3^2 + 2 \times 3 \times x + x^2$ $A = 9 + 6x + x^2$	$B = (x + 5)^2$ $B = x^2 + 2 \times x \times 5 + 5^2$ $B = x^2 + 10x + 25$
$C = (2x + 1)^2$ $C = (2x)^2 + 2 \times 2x \times 1 + 1^2$ $C = 4x^2 + 4x + 1$	$D = (1 + 3x)^2$ $D = 1^2 + 2 \times 1 \times 3x + (3x)^2$ $D = 1 + 6x + 9x^2$	$E = (3x + 2)^2$ $E = (3x)^2 + 2 \times 3x \times 2 + 2^2$ $E = 9x^2 + 12x + 4$
$F = (5x + 3)^2$ $F = (5x)^2 + 2 \times 5x \times 3 + 3^2$ $F = 25x^2 + 30x + 9$	$G = (x^2 + 1)^2$ $G = (x^2)^2 + 2 \times x^2 \times 1 + 1^2$ $G = x^4 + 2x^2 + 1$	$H = (3 + 4x)^2$ $H = 3^2 + 2 \times 3 \times 4x + (4x)^2$ $H = 9 + 24x + 16x^2$

**EXERCICE 4 -**

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

$Z = (5 - x)^2$ $Z = 5^2 - 2 \times 5 \times x + x^2$ $Z = 25 - 10x + x^2$	$A = (x - 2)^2$ $A = x^2 - 2 \times x \times 2 + 2^2$ $A = x^2 - 4x + 4$	$B = (1 - 3x)^2$ $B = 1^2 - 2 \times 1 \times 3x + (3x)^2$ $B = 1 - 6x + 9x^2$
$C = (3 - x)^2$ $C = 3^2 - 2 \times 3 \times x + x^2$ $C = 9 - 6x + x^2$	$D = (2x - 1)^2$ $D = (2x)^2 - 2 \times 2x \times 1 + 1^2$ $D = 4x^2 - 4x + 1$	$E = (3 - 5x)^2$ $E = 3^2 - 2 \times 3 \times 5x + (5x)^2$ $E = 9 - 30x + 25x^2$
$F = (3x - 2)^2$ $F = (3x)^2 - 2 \times 3x \times 2 + 2^2$ $F = 9x^2 - 12x + 4$	$G = (4x - 3)^2$ $D = (4x)^2 - 2 \times 4x \times 3 + 3^2$ $D = 16x^2 - 24x + 9$	$H = (4 - 3x^2)^2$ $H = 4^2 - 2 \times 4 \times 3x^2 + (3x^2)^2$ $H = 16 - 24x^2 + 9x^4$

**EXERCICE 5 -**

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

$Z = (2x + 5)(2x - 5)$ $Z = (2x)^2 - 5^2$ $Z = 4x^2 - 25$	$A = (x + 2)(x - 2)$ $A = x^2 - 2^2$ $A = x^2 - 4$	$B = (x + 3)(x - 3)$ $B = x^2 - 3^2$ $B = x^2 - 9$
$C = (3x - 1)(3x + 1)$ $D = (3x)^2 - 1^2$ $D = 9x^2 - 1$	$D = (2x + 1)(2x - 1)$ $D = (2x)^2 - 1^2$ $D = 4x^2 - 1$	$E = (5 + 3x)(5 - 3x)$ $E = 5^2 - (3x)^2$ $E = 25 - 9x^2$
$F = (3x - 2)(3x + 2)$ $F = (3x)^2 - 2^2$ $F = 9x^2 - 4$	$G = (3 + 4x)(3 - 4x)$ $G = 3^2 - (4x)^2$ $G = 9 - 16x^2$	$H = (4x^2 + 3)(4x^2 - 3)$ $H = (4x^2)^2 - 3^2$ $H = 16x^4 - 9$