

CORRIGE – M. QUET

EXERCICE 1 - Retrouver l'expression dont on connaît le carré :

- a. $4x^2 = (2x)^2$ b. $9x^2 = (3x)^2$ c. $36x^2 = (6x)^2$ d. $25x^2 = (5x)^2$ e. $49x^2 = (7x)^2$
 f. $81x^2 = (9x)^2$ g. $100t^2 = (10t)^2$ h. $400a^2 = (20a)^2$ i. $144b^2 = (12b)^2$ j. $16y^2 = (4y)^2$

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

$Z = 25x^2 + 30x + 9$ $Z = (5x)^2 + 2 \times 5x \times 3 + 3^2$ $Z = (5x + 3)^2$	$A = x^2 + 10x + 25$ $A = x^2 + 2 \times x \times 5 + 5^2$ $A = (x + 5)^2$	$B = x^2 + 6x + 9$ $B = x^2 + 2 \times x \times 3 + 3^2$ $B = (x + 3)^2$
$C = 36 + 12x + x^2$ $C = 6^2 + 2 \times 6 \times x + x^2$ $C = (6 + x)^2$	$D = 4x^2 + 12x + 9$ $D = (2x)^2 + 2 \times 2x \times 3 + 3^2$ $D = (2x + 3)^2$	$E = 16x^2 + 40x + 25$ $B = (4x)^2 + 2 \times 4x \times 5 + 5^2$ $B = (4x + 5)^2$

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

$Z = 9x^2 - 30x + 25$ $Z = (3x)^2 - 2 \times 3x \times 5 + 5^2$ $Z = (3x - 5)^2$	$A = x^2 - 2x + 1$ $A = x^2 - 2 \times x \times 1 + 1^2$ $A = (x - 1)^2$	$B = 4x^2 - 20x + 25$ $B = (2x)^2 - 2 \times 2x \times 5 + 5^2$ $B = (2x - 5)^2$
$C = 9 - 6x + x^2$ $C = 3^2 - 2 \times 3 \times x + x^2$ $C = (3 - x)^2$	$D = 36x^2 - 12x + 1$ $D = (6x)^2 - 2 \times 6x \times 1 + 1^2$ $D = (6x - 1)^2$	$E = 100 - 40x + 4x^2$ $E = 10^2 - 2 \times 10 \times 2x + (2x)^2$ $E = (10 - 2x)^2$

EXERCICE 4

a. Factoriser en utilisant l'identité remarquable : $a^2 - b^2 = (a + b)(a - b)$

$Z = x^2 - 81$ $Z = x^2 - 9^2$ $Z = (x + 9)(x - 9)$	$A = x^2 - 4$ $A = x^2 - 2^2$ $A = (x + 2)(x - 2)$	$B = 9 - x^2$ $B = 3^2 - x^2$ $B = (3 + x)(3 - x)$
$C = x^2 - 16$ $C = x^2 - 4^2$ $C = (x + 4)(x - 4)$	$D = x^2 - 49$ $D = x^2 - 7^2$ $D = (x + 7)(x - 7)$	$E = 25 - x^2$ $E = 5^2 - x^2$ $E = (5 + x)(5 - x)$

b. Même consigne que l'exercice précédent :

$Z = 4x^2 - 81$ $Z = (2x)^2 - 9^2$ $Z = (2x + 9)(2x - 9)$	$A = 4x^2 - 9$ $A = (2x)^2 - 3^2$ $A = (2x + 3)(2x - 3)$	$B = 16 - 9x^2$ $B = 4^2 - (3x)^2$ $B = (4 + 2x)(4 - 2x)$
$C = 16x^2 - 25$ $C = (4x)^2 - 5^2$ $C = (4x + 5)(4x - 5)$	$D = 49x^2 - 36$ $D = (7x)^2 - 6^2$ $D = (7x + 6)(7x - 6)$	$E = 4 - 64x^2$ $E = 2^2 - (8x)^2$ $E = (2 + 8x)(2 - 8x)$