

CORRIGE – M. QUET

EXERCICE 1

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

$Z = (x + 2)^2 - 81$ $Z = (x + 2)^2 - 9^2$ $Z = (x + 2 + 9)(x + 2 - 9)$ $Z = (x + 11)(x - 7)$	$A = (x + 1)^2 - 4$ $A = (x + 1)^2 - 2^2$ $A = [(x + 1) + 2] [(x + 1) - 2]$ $A = [x + 1 + 2] [x + 1 - 2]$ $A = (x + 3)(x - 1)$	$B = (x + 2)^2 - 9$ $B = (x + 2)^2 - 3^2$ $B = [(x + 2) + 3] [(x + 2) - 3]$ $B = [x + 2 + 3] [x + 2 - 3]$ $B = (x + 5)(x - 1)$
$C = (2x + 1)^2 - 25$ $C = (2x + 1)^2 - 5^2$ $C = [(2x + 1) + 5] [(2x + 1) - 5]$ $C = [2x + 1 + 5] [2x + 1 - 5]$ $C = (2x + 6)(2x - 4)$	$D = 16 - (3x + 2)^2$ $D = 4^2 - (3x + 2)^2$ $D = [4 + (3x + 2)] [4 - (3x + 2)]$ $D = [4 + 3x + 2] [4 - 3x - 2]$ $D = (3x + 6)(-3x + 2)$	$E = 36 - (4 - 3x)^2$ $E = 6^2 - (4 - 3x)^2$ $E = [6 + (4 - 3x)] [6 - (4 - 3x)]$ $E = [6 + 4 - 3x] [6 - 4 + 3x]$ $E = (10 - 3x)(3x + 2)$

b. Même consigne :

$Z = (x + 2)^2 - (2x - 3)^2$ $Z = [(x+2)+(2x-3)][(x+2)-(2x-3)]$ $Z = (x+2+2x-3)(x+2-2x+3)$ $Z = (3x - 1)(-x + 5)$	$A = (x + 1)^2 - (2x + 3)^2$ $A = [(x + 1) + (2x + 3)] [(x + 1) - (2x + 3)]$ $A = [x + 1 + 2x + 3] [x + 1 - 2x - 3]$ $A = (3x + 4)(-x - 2)$	$B = (2x - 1)^2 - (5 + x)^2$ $B = [(2x - 1) + (5 + x)] [(2x - 1) - (5 + x)]$ $B = [2x - 1 + 5 + x] [2x - 1 - 5 - x]$ $B = (3x + 4)(x - 6)$
$C = (4x - 1)^2 - (3x + 4)^2$ $C = [(4x - 1) + (3x + 4)] [(4x - 1) - (3x + 4)]$ $C = [4x - 1 + 3x + 4] [4x - 1 - 3x - 4]$ $C = (7x + 3)(x - 5)$	$D = (3x - 4)^2 - (6x + 1)^2$ $D = [(3x - 4) + (6x + 1)] [(3x - 4) - (6x + 1)]$ $D = [3x - 4 + 6x + 1] [3x - 4 - 6x - 1]$ $D = (9x - 3)(-3x - 5)$	$E = (x + 6)^2 - (3x - 1)^2$ $E = [(x + 6) + (3x - 1)] [(x + 6) - (3x - 1)]$ $E = [x + 6 + 3x - 1] [x + 6 - 3x + 1]$ $E = (4x + 5)(-2x + 7)$

EXERCICE 2 - Factoriser d'abord l'expression soulignée pour retrouver le facteur commun :

$Z = (x + 2)(x + 1) + \underline{x^2 - 1}$ $Z = (x+2)(x+1) + (x+1)(x-1)$ $Z = (x+1)[(x+2) + (x-1)]$ $Z = (x + 1)(x + 2 + x - 1)$ $Z = (x + 1)(2x + 1)$	$A = (x + 2)(3x - 1) + \underline{x^2 - 4}$ $A = (x + 2)(3x - 1) + (x + 2)(x - 2)$ $A = (x + 2)[(3x - 1) + (x - 2)]$ $A = (x + 2)[3x - 1 + x - 2]$ $A = (x + 2)(4x - 3)$	$B = (x + 4)(2x - 1) + \underline{x^2 - 16}$ $B = (x + 4)(2x - 1) + (x + 4)(x - 4)$ $B = (x + 4)[(2x - 1) + (x - 4)]$ $B = (x + 4)[2x - 1 + x - 4]$ $B = (x + 4)(3x - 5)$
$C = (x - 3)(x + 1) - \underline{(x^2 - 9)}$ $C = (x - 3)(x + 1) - (x + 3)(x - 3)$ $C = (x - 3)[x + 1 - x - 3]$ $C = -2(x - 3)$	$D = (2x + 1)(x - 2) - \underline{(x^2 - 4)}$ $D = (2x + 1)(x - 2) - (x + 2)(x - 2)$ $D = (x - 2)[(2x + 1) - (x + 2)]$ $D = (x - 2)[2x + 1 - x - 2]$ $D = (x - 2)(x - 1)$	$E = \underline{25 - x^2} - (x - 5)(2x + 3)$ $E = (5 + x)(5 - x) - (x - 5)(2x + 3)$ $E = (5 + x)(5 - x) - [-(5 - x)](2x + 3)$ $E = (5 + x)(5 - x) + (5 - x)(2x + 3)$ $E = (5 - x)[(5 + x) + (2x + 3)]$ $E = (5 - x)[5 + x + 2x + 3]$ $E = (5 - x)(3x + 8)$