

CORRIGE – M. QUET

EXERCICE 1 $(a+b)^2 = a^2 + 2ab + b^2$

Exemple :

$A = 101^2$

$A = (100 + 1)^2$

$A = 100^2 + 200 + 1$

$A = 10\,000 + 200 + 1$

$A = 10\,201$

$B = 102^2$

$B = (100 + 2)^2$

$B = 100^2 + 2 \times 100 \times 2 + 2^2$

$B = 10\,000 + 400 + 4$

$B = 10\,404$

$C = 51^2$

$C = (50 + 1)^2$

$C = 50^2 + 2 \times 50 \times 1 + 1^2$

$C = 2\,500 + 100 + 1$

$C = 2\,601$

$D = 1\,005^2$

$D = (1000 + 5)^2$

$D = 1000^2 + 2 \times 1000 \times 5 + 5^2$

$D = 1\,000\,000 + 10\,000 + 25$

$D = 1\,010\,025$

$E = 201^2$

$E = (200 + 1)^2$

$E = 200^2 + 2 \times 200 \times 1 + 1^2$

$E = 40\,000 + 400 + 1$

$E = 40\,401$

$F = 109^2$

$F = (100 + 9)^2$

$F = 100^2 + 2 \times 100 \times 9 + 9^2$

$F = 10\,000 + 1\,800 + 81$

$F = 11\,881$

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

Exemple :

$A = 99^2$

$A = (100 - 1)^2$

$A = 100^2 - 200 + 1$

$A = 10\,000 - 200 + 1$

$A = 9\,801$

$B = 98^2$

$B = (100 - 2)^2$

$B = 100^2 - 2 \times 100 \times 2 + 2^2$

$B = 10\,000 - 400 + 4$

$B = 9\,604$

$C = 49^2$

$C = (50 - 1)^2$

$C = 50^2 - 2 \times 50 \times 1 + 1^2$

$C = 2\,500 - 100 + 1$

$C = 2\,401$

$D = 990^2$

$D = (1\,000 - 10)^2$

$D = 1000^2 - 2 \times 1000 \times 10 + 10^2$

$D = 1\,000\,000 - 20\,000 + 100$

$D = 980\,100$

$E = 199^2$

$E = (200 - 1)^2$

$E = 200^2 - 2 \times 200 \times 1 + 1^2$

$E = 40\,000 - 400 + 1$

$E = 39\,601$

$F = 91^2$

$F = (100 - 9)^2$

$F = 100^2 - 2 \times 100 \times 9 + 9^2$

$F = 10\,000 - 1\,800 + 81$

$F = 8\,281$

EXERCICE 3 $(a+b)(a-b) = a^2 - b^2$

Exemple :

$A = 101 \times 99$

$A = (100 + 1)(100 - 1)$

$A = 100^2 - 1^2$

$A = 10\,000 - 1$

$A = 9\,999$

$B = 105 \times 95$

$B = (100 + 5)(100 - 5)$

$B = 100^2 - 5^2$

$B = 10\,000 - 25$

$B = 9\,975$

$C = 51 \times 49$

$C = (50 + 1)(50 - 1)$

$C = 50^2 - 1^2$

$C = 2\,500 - 1$

$C = 2\,499$

$D = 107 \times 93$

$D = (100 + 7)(100 - 7)$

$D = 100^2 - 7^2$

$D = 10\,000 - 49$

$D = 9\,951$

$E = 498 \times 502$

$E = (500 + 2)(500 - 2)$

$E = 500^2 - 2^2$

$E = 250\,000 - 4$

$E = 249\,996$

$F = 1\,007 \times 993$

$F = (1\,000 + 7)(1\,000 - 7)$

$F = 1\,000^2 - 7^2$

$F = 1\,000\,000 - 49$

$F = 999\,951$

EXERCICE 4 $a^2 - b^2 = (a+b)(a-b)$

Exemple :

$A = 101^2 - 99^2$

$A = (101 + 99)(101 - 99)$

$A = 200 \times 2$

$A = 400$

$B = 105^2 - 95^2$

$B = (105 + 95)(105 - 95)$

$B = 200 \times 10$

$B = 2\,000$

$C = 235^2 - 234^2$

$C = (235 + 234)(235 - 234)$

$C = 469 \times 1$

$C = 469$

$D = 47^2 - 53^2$

$D = (47 + 53)(47 - 53)$

$D = 100 \times (-6)$

$D = -600$

$E = 9\,876^2 - 9\,875^2$

$E = (9\,876 + 9\,875) \times$

$(9\,876 - 9\,875)$

$E = 19\,751 \times 1$

$E = 19\,751$

$F = 93^2 - 107^2$

$F = (93 + 107)(93 - 107)$

$F = 200 \times (-14)$

$F = -2\,800$