

Exercice 1 : Développer et réduire si possible.

$$\begin{array}{lll}
 A = (4x + 3)^2 & B = (2 - 5x)^2 & C = (3a + 5)^2 \\
 D = (4m + 6)^2 & E = (5x + 2)(5x - 2) & F = (3x + 5)(3x - 4) \\
 G = (2a + 5)(2a - 5) & H = (b - 3)(b + 3) & I = (8 + c)(8 - c) \\
 J = 2(3x + 5) & K = (6x - 2)(-2x + 1) & L = 3(2x + 3)(x - 1) \\
 M = -7(5a - 9) & N = (8b - 4)(5 + 3b) & O = 2c(-3c + 9) \\
 P = (5d + 6) - (3d - 4) & Q = 3(4x - 5) + 8(3 + 2x) & R = 8(6x - 3) - 4(12x + 5)
 \end{array}$$

Exercice 2 : Développer en utilisant les identités remarquables.

$$\begin{array}{lll}
 A = (x + 3)^2 & B = (5x + 2)^2 & C = (3m + 4)^2 \\
 D = (3x - 4)^2 & E = (2 - 3x)^2 & F = (3 - 4b)^2 \\
 G = \left(\frac{3}{4}x + 2\right)^2 & H = \left(\frac{4}{5} - \frac{5}{4}x\right)^2 & I = \left(\frac{5}{2}x - \frac{2}{3}\right)\left(\frac{5}{2}x + \frac{2}{3}\right)
 \end{array}$$

Exercice 3 : Soit les deux expressions A et B :

$$A = 3x - 7; \quad B = 3x + 7.$$

Développer et réduire :

$$A^2; \quad B^2; \quad AB; \quad 2A^2; \quad -3A^2; \quad 4A^2 - 5B^2.$$

Exercice 4 : Calculer mentalement.

$$\begin{array}{lll}
 A = 3,5^2 + 2 \times 3,5 \times 6,5 + 6,5^2 & & \\
 B = 12,5^2 - 2 \times 12,5 \times 2,5 + 2,5^2 & & \\
 C = 75^2 - 25^2 & & \\
 D = 120^2 - 20^2 & & \\
 E = (100 + 1)^2 & F = 102^2 & G = 104^2 \\
 H = (100 - 1)^2 & I = 95^2 & J = 97^2 \\
 K = (100 + 1)(100 - 1) & L = 102 \times 98 & M = 103 \times 97
 \end{array}$$

Exercice 5 : Parmi les expressions et celles qui sont développées.

$$\begin{array}{ll}
 A = (2a + 5)(3a - 4) & B = \dots \\
 D = 5x(3 + 2x) & E = \dots
 \end{array}$$

Exercice 6 : Factoriser les expressions

$$\begin{array}{l}
 A = 7a + 7b \\
 C = 250a - 100b \\
 E = 25x^2 - 13x \\
 G = 5x^3 - x^2 \\
 I = (8x - 3)(3x + 7) + (8x - 3)(5x + 2) \\
 K = (9r - 3)(4r - 2) + (9r - 3)^2
 \end{array}$$

Exercice 7 : Factoriser, si possible, les expressions remarquables.

$$\begin{array}{ll}
 A = 4x^2 + 12x + 9 & B = \dots \\
 D = 16 + 24b + 9b^2 & E = \dots \\
 G = 36x^2 - 36x + 9 & H = \dots \\
 J = 16x^2 + 16x - 4 & K = \dots \\
 M = 16x^2 - 25 & N = \dots \\
 P = 49R^2 - 4 & Q = \dots
 \end{array}$$

Exercice 8 : Factoriser les expressions adaptées.

$$\begin{array}{ll}
 A = (9x + 6)^2 - (5x + 2)^2 & B = \dots \\
 C = (4x - 3)^2 - 36 & D = \dots \\
 F = 25x^2 - 70x + 49 & G = \dots
 \end{array}$$

Exercice 9 : Même énoncé qu'au 8

$$\begin{array}{l}
 A = (2x - 5)^2 - (2x - 5)(3x - 2) \\
 C = (3x - 2)^2 - 25 \\
 E = (5x - 1)^2 - (5x - 1)(x + 3) \\
 G = (4 - x)^2 - 4
 \end{array}$$