

**MATHEMATIQUES - 2^{nde}**

Année Scolaire 2021-2022

Evaluation n°2 - Correction

Vendredi 22 octobre 2021

Exercice 1**Question :** La simplification des expressions littérales donne :

$$\begin{aligned} A &= (7 + 7\sqrt{7})^2 \\ &= 7^2 + 2 \times 7 \times 7\sqrt{7} + (7\sqrt{7})^2 \\ &= 49 + 98\sqrt{7} + 7^2 \times \sqrt{7}^2 \\ &= 49 + 98\sqrt{7} + 49 \times 7 \\ &= 392 + 98\sqrt{7} \end{aligned} \quad \begin{aligned} B &= (7 + \sqrt{7})(7 - \sqrt{7}) \\ &= 7^2 - (\sqrt{7})^2 \\ &= 49 - 7 \\ &= 42 \end{aligned} \quad \begin{aligned} C &= \sqrt{7}(7 - \sqrt{7})^2 \\ &= \sqrt{7} \left[7^2 - 2 \times 7 \times \sqrt{7} + (\sqrt{7})^2 \right] \\ &= \sqrt{7}(49 - 14\sqrt{7} + 7) \\ &= \sqrt{7}(56 - 14\sqrt{7}) \\ &= 56 \times \sqrt{7} - 14\sqrt{7} \times \sqrt{7} \\ &= -98 + 56\sqrt{7} \end{aligned}$$

Exercice 2**Question :** Le développement et la réduction des expressions littérales donne :

$$\begin{aligned} D &= (1 - 2x)^2 \\ &= 1^2 - 2 \times 1 \times 2x + (2x)^2 \\ &= 1 - 4x + 4x^2 \end{aligned} \quad \begin{aligned} E &= 2x(-5x + 3)(11 - x) - 1 \\ &= 2x[-5x \times 11 + 3 \times 11 - 5x \times (-x) + 3 \times (-x)] - 1 \\ &= 2x(-55x + 33 + 5x^2 - 3x) - 1 \\ &= 2x(-58x + 33 + 5x^2) - 1 \\ &= 2x \times (-58x) + 2x \times 33 + 2x \times 5x^2 - 1 \\ &= -116x^2 + 66x + 10x^3 - 1 \\ &= 10x^3 - 116x^2 + 66x - 1 \end{aligned}$$

$$\begin{aligned} F &= (x^2 - 2)(x^2 + 2) \\ &= (x^2)^2 - 2^2 \\ &= x^4 - 4 \end{aligned}$$

**Exercice 3**

Question : La factorisation des expressions littérales donne :

$$\begin{aligned} G &= 81x^2 - 108x + 36 & H &= (-3x + 2)^2 - (5x - 1)(2 - 3x) & I &= 1 - x^2 \\ &= (9x - 6)^2 & &= (-3x + 2)[(-3x + 2) - (5x - 1)] & &= (1 - x)(1 + x) \\ & & &= (-3x + 2)(-3x + 2 - 5x + 1) & & \\ & & &= (-3x + 2)(-8x + 3) & & \end{aligned}$$

Exercice 4

Question 1-2-3 : Les simplifications des expressions donnent :

$$\begin{aligned} J &= \sqrt{\frac{81x^3y^2}{36x^2}} & K &= u \frac{\sqrt{u^2 - 2u + 1}}{\sqrt{(u-1)^2}} & L &= \left[\left(\sqrt{z^2 z^4} \right)^{-3} \right]^5 \\ &= \frac{\sqrt{9^2 x^2 xy^2}}{\sqrt{6^2 x^2}} & &= u \frac{\sqrt{(u-1)^2}}{\sqrt{(u-1)^2}} & &= \left[\left(\sqrt{z^2} \times \sqrt{z^4} \right)^{-3} \right]^5 \\ &= \frac{9xy\sqrt{x}}{6x} & &= u & &= \left[(z \times z^2)^{-3} \right]^5 \\ &= \frac{3y}{2} \sqrt{x} & & & &= \left[(z^3)^{-3} \right]^5 \\ & & & & &= (z^{-9})^5 \\ & & & & &= z^{-45} \end{aligned}$$