

Exercice 1

$$\begin{aligned} 1) \text{ Aire (ABCD)} &= AB \times AD = (10 + 2x)(15 + 2x) \\ &= 150 + 20x + 30x + 4x^2 \\ &= 4x^2 + 50x + 150 \end{aligned}$$

$$\begin{aligned} V_6 &= \text{Aire (ABCD)} - \text{Aire (Photo)} \\ &= 4x^2 + 50x + 150 - (15 \times 10) = 4x^2 + 50x + 150 - 150 = \underline{\underline{4x^2 + 50x}} \quad \text{C9FD} \end{aligned}$$

$$2) V_6(3) = 4 \times (3)^2 + 50 \times 3 = 4 \times 9 + 150 = 36 + 150 = \underline{\underline{186 \text{ cm}^2}} \quad \text{C9FD}$$

$$3) V_6(2,5) = 4 \times (2,5)^2 + 50 \times 2,5 = 4 \times 6,25 + 125 = 25 + 125 = 150 \text{ cm}^2$$

Pour $V_6(2,5) = \text{Aire (Photo)}$, donc la réponse à la question est OUI.

Exercice 2

$$\begin{aligned} A &= 6 \times \frac{1}{6^7} \times 6^3 = \frac{6^4}{6^7} = \underline{\underline{6^{-3}}} \\ B &= (5^4) \times \frac{2^9}{2} = 5^8 \times 2^8 = (10)^8 \\ C &= \frac{3^{-1} \times (3^2)^3}{3^7} = \frac{3^{-1} \times 3^6}{3^7} = \frac{3^5}{3^7} = \underline{\underline{3^{-2}}} \end{aligned}$$

Exercice 3

$$\begin{aligned} D &= 12,5 \times 10^6 \times 18 \times (10^{-5})^2 = (12,5 \times 18) \times 10^6 \times 10^{-10} = 225 \times 10^{-4} = \underline{\underline{2,25 \times 10^{-2}}} \\ E &= \frac{4 \times 10^8 \times 3,5 \times 10^{-7}}{16 \times 10^4} = \frac{4 \times 3,5}{16} \times \frac{10^8 \times 10^{-7}}{10^{-4}} = \frac{14}{16} \times 10^2 = 0,875 \times 10^2 \\ &= \underline{\underline{8,75 \times 10^1}} \end{aligned}$$

Exercice 4

$$\begin{aligned} 1) d &= 3 \times 10^5 \times 3600 + 24 \times 365,25 = 946728 \times 10^7 = \underline{\underline{9,46728 \times 10^{12} \text{ km}}} \\ 2) d &= \frac{4,07 \times 10^{15}}{9,46728 \times 10^{12}} = 0,4299 \times 10^3 \approx 429 \quad \text{proche de } \underline{\underline{400 \text{ AI}}} \end{aligned}$$