CORRECTION DE LA FIN DE L'EXERCICE E SUR LES PUISSANCES

$$\begin{aligned} D &= \frac{560^3 \times 1100^2}{0,00105^{-2}} = \frac{(7 \times 2^3 \times 2 \times 5)^3 \times (11 \times 2^2 \times 5^2)^2}{(21 \times 5 \times 10^{-5})^{-2}} = \frac{7^3 \times (2^4)^3 \times 5^3 \times 11^2 \times 2^4 \times 5^4}{(7 \times 3)^{-2} \times 5^{-2} \times (2 \times 5)^{10}} \\ &= \frac{7^3 \times 2^{12} \times 2^4 \times 5^7 \times 11^2}{7^{-2} \times 3^{-2} \times 5^{-2} \times 2^{10} \times 5^{10}} = 2^{12+4-10} \times 3^2 \times 5^{7+2-10} \times 7^{3+2} \times 11^2 = \boxed{2^6 \times 3^2 \times 5^{-1} \times 7^5 \times 11^2} \end{aligned}$$

$$\begin{aligned} E &= \frac{0,0000088^2}{630^3} = \frac{(2^3 \times 11 \times 10^{-7})^2}{(7 \times 3^2 \times 10)^3} = \frac{2^6 \times 11^2 \times 10^{-14}}{7^3 \times 3^6 \times 10^3} = 2^6 \times 3^{-6} \times 7^{-3} \times 11^2 \times (2 \times 5)^{-17} \\ &= 2^{6-17} \times 3^{-6} \times 5^{-17} \times 7^{-3} \times 11^2 = \boxed{2^{-11} \times 3^{-6} \times 5^{-17} \times 7^{-3} \times 11^2} \end{aligned}$$

On remarque, pour le calcul de F, que $512 = 2 \times 256 = 2^2 \times 128 = 2^3 \times 64 = 2^3 \times 8^2 = 2^3 \times (2^3)^2 = 2^3 \times 2^6 = 2^9$ et $243 = 3 \times 81 = 3 \times 9^2 = 3 \times (3^2)^2 = 3 \times 3^4 = 3^5$. Ainsi,

$$\begin{aligned} F &= (512 \times 0,000036^4)^3 \times (0,243^2 \times 90^5)^{-1} = (2^9 \times (2^2 \times 3^2 \times 10^{-6})^4)^3 \times ((3^5 \times 10^{-3})^2 \times (3^2 \times 10)^5)^{-1} \\ &= 2^{27} \times 2^{8\times3} \times 3^{8\times3} \times 10^{-24\times3} \times 3^{10\times(-1)} \times 10^{-6\times(-1)} \times 3^{10\times(-1)} \times 10^{-5} \\ &= 2^{27+24} \times 3^{24-10-10} \times (2 \times 5)^{-72+6-5} = 2^{51} \times 3^4 \times 2^{-71} \times 5^{-71} = \boxed{2^{-20} \times 3^4 \times 5^{-71}} \end{aligned}$$