

Exercice V :

indices : séparer les $\sqrt{7}$, produit ou somme ?

$$\begin{aligned} D &= \sqrt{63 \times 11\sqrt{7} \times 2\sqrt{175}} \\ &= \sqrt{9 \times 7 \times 11\sqrt{7} \times 2\sqrt{25 \times 7}} \\ &= 3 \times \sqrt{7} \times 11 \times \sqrt{7} \times 2 \times 5 \times \sqrt{7} \\ &= 330 \times \sqrt{7} \times \sqrt{7} \times \sqrt{7} \\ &= 330 \times 7 \sqrt{7} = \boxed{2310 \sqrt{7}} \end{aligned}$$

$$\begin{aligned} E &= \sqrt{63 - 11\sqrt{7} + 2\sqrt{175}} \\ &= \sqrt{9 \times 7 - 11\sqrt{7} + 2\sqrt{25 \times 7}} \\ &= 3\sqrt{7} - 11\sqrt{7} + 2 \times 5\sqrt{7} \\ &= \boxed{2\sqrt{7}}. \end{aligned}$$