

تمرين 6

(1) أقرن: $\frac{8}{\sqrt{5}+\sqrt{3}}$ و $\frac{7}{\sqrt{3}+\sqrt{5}}$

• لدينا: $7 \leq 8$

والعدد $\frac{1}{\sqrt{3}+\sqrt{5}}$ عدد موجب

إذن: $7 \times \frac{1}{\sqrt{3}+\sqrt{5}} \leq 8 \times \frac{1}{\sqrt{3}+\sqrt{5}}$

ومنه فإن: $\frac{7}{\sqrt{3}+\sqrt{5}} \leq \frac{8}{\sqrt{3}+\sqrt{5}}$

(2) أقرن: $\sqrt{3}-\sqrt{2}$ و $\frac{1}{\sqrt{3}+\sqrt{2}}$

$$\begin{aligned} \frac{1}{\sqrt{3}+\sqrt{2}} &= \frac{\sqrt{3}-\sqrt{2}}{(\sqrt{3}+\sqrt{2})(\sqrt{3}-\sqrt{2})} \\ &= \frac{\sqrt{3}-\sqrt{2}}{(\sqrt{3})^2 - (\sqrt{2})^2} \\ &= \frac{\sqrt{3}-\sqrt{2}}{3-2} = \frac{\sqrt{3}-\sqrt{2}}{1} \end{aligned}$$

إذن: $\frac{1}{\sqrt{3}+\sqrt{2}} = \sqrt{3}-\sqrt{2}$

(3) أقرن $1+2\sqrt{2}$ و $\sqrt{8}+\sqrt{3}$

لدينا: $\sqrt{8} = \sqrt{2^2 \times 2} = 2\sqrt{2}$

ولدينا: $1 \leq 3$

يعني: $\sqrt{1} \leq \sqrt{3}$

إذن: $1 + \sqrt{8} \leq \sqrt{3} + \sqrt{8}$

ومنه فإن: $1 + 2\sqrt{2} \leq \sqrt{3} + \sqrt{8}$