

**α)** Είναι:

$$\begin{aligned} A - B &= (\sqrt{2})^6 - (\sqrt[3]{2})^6 = [(\sqrt{2})^2]^3 - [(\sqrt[3]{2})^3]^2 = \\ &= 2^3 - 2^2 = 8 - 4 = 4 \end{aligned}$$

**β)** Ισχύει ότι:

$$1 < 2 \Leftrightarrow \sqrt[3]{1} < \sqrt[3]{2} \Leftrightarrow 1 < \sqrt[3]{2} \quad (1)$$

και

$$A - B = 4 > 0 \Leftrightarrow A > B \Leftrightarrow (\sqrt{2})^6 > (\sqrt[3]{2})^6 \Leftrightarrow \sqrt{2} > \sqrt[3]{2} \quad (2)$$

Από τις ανισώσεις (1) και (2) βρίσκουμε:

$$1 < \sqrt[3]{2} < \sqrt{2}$$