

LỜI GIẢI - HƯỚNG DẪN - ĐÁP SỐ CHƯƠNG II

§1

2.1. a) 4 ; b) 3 ; c) 5 ; d) $2^{2\sqrt{3}} - \frac{1}{4}$.

2.2. a) $36,5 = \frac{73}{2}$; b) $5,9375 = \frac{95}{16}$; c) $\frac{113}{12}$; d) $\frac{289}{27}$.

2.3. Với a và b là các số dương, ta có :

$$\text{a) } \frac{a^{\frac{4}{3}} \left(a^{-\frac{1}{3}} + a^{\frac{2}{3}} \right)}{a^{\frac{1}{4}} \left(a^{\frac{3}{4}} + a^{-\frac{1}{4}} \right)} = \frac{a + a^2}{a + 1} = \frac{a(a + 1)}{a + 1} = a.$$

$$\text{b) } \frac{a^{\frac{1}{3}} \sqrt{b} + b^{\frac{1}{3}} \sqrt{a}}{\sqrt[6]{a} + \sqrt[6]{b}} = \frac{a^{\frac{1}{3}} b^{\frac{1}{2}} + b^{\frac{1}{3}} a^{\frac{1}{2}}}{a^{\frac{1}{6}} + b^{\frac{1}{6}}} = \frac{a^{\frac{1}{3}} b^{\frac{1}{3}} \left(b^{\frac{1}{2} - \frac{1}{3}} + a^{\frac{1}{2} - \frac{1}{3}} \right)}{a^{\frac{1}{6}} + b^{\frac{1}{6}}}$$

$$= \frac{a^{\frac{1}{3}} b^{\frac{1}{3}} \left(b^{\frac{1}{6}} + a^{\frac{1}{6}} \right)}{a^{\frac{1}{6}} + b^{\frac{1}{6}}} = \sqrt[3]{ab}.$$

$$\begin{aligned} \text{c) } (\sqrt[3]{a} + \sqrt[3]{b}) \left(a^{\frac{2}{3}} + b^{\frac{2}{3}} - \sqrt[3]{ab} \right) &= \left(a^{\frac{1}{3}} + b^{\frac{1}{3}} \right) \left(a^{\frac{2}{3}} - a^{\frac{1}{3}} b^{\frac{1}{3}} + b^{\frac{2}{3}} \right) \\ &= \left(a^{\frac{1}{3}} \right)^3 + \left(b^{\frac{1}{3}} \right)^3 = a + b \end{aligned}$$

$$\begin{aligned} \text{d) } \left(a^{\frac{1}{3}} + b^{\frac{1}{3}} \right) : \left(2 + \sqrt[3]{\frac{a}{b}} + \sqrt[3]{\frac{b}{a}} \right) &= \frac{a^{\frac{1}{3}} + b^{\frac{1}{3}}}{\frac{2\sqrt[3]{ab} + \sqrt[3]{a^2} + \sqrt[3]{b^2}}{\sqrt[3]{ab}}} \\ &= \frac{(\sqrt[3]{a} + \sqrt[3]{b})\sqrt[3]{ab}}{(\sqrt[3]{a} + \sqrt[3]{b})^2} = \frac{\sqrt[3]{ab}}{\sqrt[3]{a} + \sqrt[3]{b}}. \end{aligned}$$

$$2.4. \text{ a) } 2^{-2} = \frac{1}{2^2} < 1 ;$$

$$\text{b) } (0,013)^{-1} = \frac{1}{0,013} > 1 ;$$

$$\text{c) Tương tự, } \left(\frac{2}{7} \right)^5 < 1 ;$$

$$\text{d) } \left(\frac{1}{2} \right)^{\sqrt{3}} < 1 ;$$

$$\text{e) } \left(\frac{\pi}{4} \right)^{\sqrt{5}-2} < 1 ;$$

$$\text{g) } \left(\frac{1}{3} \right)^{\sqrt{8}-3} > 1.$$

$$2.5. \text{ a) } \sqrt{17} = \sqrt[6]{17^3} = \sqrt[6]{4913} ; \sqrt[3]{28} = \sqrt[6]{28^2} = \sqrt[6]{784}.$$

Vậy $\sqrt{17} > \sqrt[3]{28}$.

$$\text{b) } \sqrt[4]{13} = \sqrt[20]{13^5} = \sqrt[20]{371293} ; \sqrt[5]{23} = \sqrt[20]{23^4} = \sqrt[20]{279841}.$$

Ta có $371293 > 279841$ nên $\sqrt[4]{13} > \sqrt[5]{23}$.

$$\text{c) } \sqrt{3} > \sqrt{2} \text{ và } \frac{1}{3} < 1 \text{ nên } \left(\frac{1}{3} \right)^{\sqrt{3}} < \left(\frac{1}{3} \right)^{\sqrt{2}}.$$

$$\text{d) } \sqrt{5} < \sqrt{7} \text{ và } 4 > 1 \text{ nên } 4^{\sqrt{5}} < 4^{\sqrt{7}}.$$