

1. a) $32 = \underline{2^5}$

b) $\frac{1}{32} = \underline{2^{-5}}$

c) $\sqrt[3]{32} = \underline{2^{\frac{5}{3}}}$

d) $\frac{1}{\sqrt[3]{32}} = \underline{2^{-\frac{5}{3}}}$

2. a) $(-50)^2 \cdot (-0,08)^2 = (-50 \cdot (-0,08))^2 = 4^2 = \underline{16}$

b) $\frac{(-45)^4}{60^4} = \left(-\frac{45}{60}\right)^4 = \left(-\frac{3}{4}\right)^4 = \underline{\underline{\frac{81}{256}}}$

c) $\sqrt{72} \cdot \sqrt{2} = \sqrt{144} = \underline{12}$

d) $\frac{\sqrt[3]{54}}{\sqrt[3]{2}} = \sqrt[3]{\frac{54}{2}} = \sqrt[3]{27} = \underline{3}$

3. a) $\frac{x^3 y}{x^2 y^3} = \frac{x}{y^2}$

b) $\frac{\sqrt{x^3} \cdot \sqrt[3]{y}}{\sqrt[3]{x^2} \cdot \sqrt{y^3}} = x^{\frac{3}{2} \cdot \frac{1}{3}} y^{\frac{1}{3} \cdot \frac{3}{2}} = x^{\frac{5}{6}} y^{\frac{1}{2}} = \frac{\sqrt[6]{x^5}}{\sqrt[6]{y^3}} = \underline{\underline{\sqrt[6]{\frac{x^5}{y^3}}}}$

c) $\sqrt{\frac{32a}{\sqrt{3a}}} \cdot \sqrt{\frac{\sqrt{27a^3}}{2a^2}} = \frac{2^{\frac{5}{2}} a^{\frac{1}{2}} \cdot 3^{\frac{3}{4}} a^{\frac{3}{4}}}{3^{\frac{1}{4}} a^{\frac{1}{4}} \cdot 2^{\frac{1}{2}} a} = 2^2 \cdot 3^{\frac{1}{2}} = \underline{\underline{4\sqrt{3}}}$

d) $\frac{\sqrt[4]{8x^3} \cdot \sqrt[3]{8x^3}}{\sqrt{8x^3}} = 2^{\frac{3}{4} + 1 - \frac{3}{2}} x^{\frac{3}{4} + 1 - \frac{3}{2}} = 2^{\frac{1}{4}} x^{\frac{1}{4}} = \underline{\underline{\sqrt[4]{2x}}}$

e) $\left(\frac{\sqrt{\sqrt{3x}}}{\sqrt[3]{\sqrt{12x}}}\right)^6 = \frac{3^{\frac{6}{6}} x^{\frac{6}{6}}}{3^{\frac{6}{6}} \cdot 2^{\frac{12}{6}} x^{\frac{6}{6}}} = 2^{-2} \cdot 3^{\frac{1}{2}} x^{\frac{1}{2}} = \underline{\underline{\frac{\sqrt{3x}}{4}}}$

f) $\frac{\sqrt[3]{\frac{\sqrt{32a}}{2}}}{\frac{\sqrt[3]{16a^2}}{\sqrt{2}}} = \frac{2^{\frac{5}{6}} a^{\frac{1}{6}} \cdot 2^{\frac{1}{6}}}{2^{\frac{1}{3}} \cdot 2^{\frac{4}{6}} a^{\frac{2}{6}}} = 2^{\frac{1}{2}} a^{-\frac{1}{6}} = \underline{\underline{\sqrt[6]{2a}}}$