

RADICALES

8) b) $\sqrt[6]{125} = \sqrt[6]{5^3} = \sqrt{5}$ c) $\sqrt[12]{256} = \sqrt[12]{2^8} = \sqrt[3]{2^2} = \sqrt[3]{4}$
d) $\sqrt[8]{3^6} = \sqrt[4]{3^3}$ e) $\sqrt[4]{6561} = \sqrt[4]{3^8} = 3^2 = 9$
f) $\sqrt{3125} = \sqrt{5^5} = \sqrt{5^4 \cdot 5} = 5^2 \sqrt{5} = 25\sqrt{5}$

9) a) $\sqrt[3]{24}, \sqrt{23}, \sqrt[6]{2^5} \Rightarrow \sqrt[6]{2^8}, \sqrt[6]{2^9}, \sqrt[6]{2^5}$
b) $\sqrt[5]{3^4}, \sqrt[3]{3^2}, \sqrt[15]{3^{10}} \Rightarrow \sqrt[15]{3^{12}}, \sqrt[15]{3^{10}}, \sqrt[15]{3^{10}}$
c) $\sqrt[5]{3}, \sqrt{2}, \sqrt[3]{5} \Rightarrow \sqrt[15]{3^3}, \sqrt[15]{2^3}, \sqrt[15]{5^5}$

10) b) $5\sqrt{3} = \sqrt{3 \cdot 5^2} = \sqrt{75}$ c) $4\sqrt{5} = \sqrt{5 \cdot 4^2} = \sqrt{80}$
d) $2\sqrt{5} = \sqrt{5 \cdot 2^2} = \sqrt{20}$ e) $2\sqrt{2} = \sqrt{8}$
f) $5\sqrt{6} = \sqrt{6 \cdot 5^2} = \sqrt{150}$ g) $10\sqrt{5} = \sqrt{500}$
h) $3\sqrt[3]{10} = \sqrt[3]{3^3 \cdot 10} = \sqrt[3]{270}$

11) b) $\sqrt{200} = \sqrt{2 \cdot 10^2} = 10\sqrt{2}$ e) $\sqrt{75} = \sqrt{5^2 \cdot 3} = 5\sqrt{3}$
d) $\sqrt[3]{40} = \sqrt[3]{2^3 \cdot 5} = 2\sqrt[3]{5}$ e) $\sqrt{20} = \sqrt{5 \cdot 2^2} = 2\sqrt{5}$
f) $\sqrt{63} = \sqrt{3^2 \cdot 7} = 3\sqrt{7}$ g) $\sqrt{45} = \sqrt{3^2 \cdot 5} = 3\sqrt{5}$

12) b) $\sqrt[3]{2\sqrt{2}} = \sqrt[3]{\sqrt{2 \cdot 2^2}} = \sqrt[6]{2^3} = \sqrt{2}$ d) $\sqrt{\sqrt{625}} = \sqrt[4]{5^4} = 5$
c) $\sqrt[3]{\sqrt{64}} = \sqrt[6]{2^6} = 2$
e) $\sqrt{\sqrt{\sqrt{256}}} = \sqrt[8]{2^8} = 2$ f) $\sqrt{16\sqrt{64}} = \sqrt{2^4 \sqrt{2^6}} = \sqrt{\sqrt{2^8 \cdot 2^6}} =$
 $= \sqrt[4]{2^{14}} = \sqrt[4]{2^{12} \cdot 2^2} = 2^3 \sqrt[4]{2^2} = \underline{\underline{8\sqrt{2}}}$

$$(13) \quad a) \sqrt{2} \cdot \sqrt{32} = \sqrt{64} = 8 \quad b) \sqrt[3]{3} \cdot \sqrt[3]{9} = \sqrt[3]{27} = 3$$

$$c) \sqrt{2} \cdot 8^{0,5} = \sqrt{2} \cdot \sqrt{8} = \sqrt{16} = 4$$

$$d) \sqrt{2} \cdot \sqrt[3]{15} = \sqrt[6]{2^3 \cdot 15^2} =$$

$$e) \sqrt[3]{2} \cdot \sqrt[5]{3} = \sqrt[15]{2^5 \cdot 3^3} \quad f) \sqrt[3]{2} \cdot \sqrt[5]{8} = \sqrt[15]{2^5 \cdot 8^5} = \sqrt[15]{2^5 \cdot 2^{15}} = 2 \sqrt[15]{2^5}$$

$$(14) \quad a) \frac{\sqrt{15}}{\sqrt{3}} = \sqrt{5}$$

$$b) \frac{\sqrt{2}}{\sqrt[3]{32}} = \sqrt[6]{\frac{2^3}{32^3}} = \sqrt[6]{\frac{2^3}{2^{15}}} = \sqrt[6]{\frac{1}{2^{12}}} = \frac{1}{2^2} = \frac{1}{4}$$

$$c) \frac{\sqrt{3}}{\sqrt{4}} = \frac{\sqrt{3}}{2}$$

$$d) \sqrt{8} : \sqrt[4]{2} = \frac{\sqrt{8}}{\sqrt[4]{2}} = \sqrt[4]{\frac{8^2}{2}} = \sqrt[4]{\frac{2^6}{2}} = \sqrt[4]{2^5} = \sqrt[4]{2^4 \cdot 2} = 2 \sqrt[4]{2}$$

$$e) \frac{\sqrt[3]{81}}{\sqrt[3]{9}} = \sqrt[3]{\frac{81}{9}} = \sqrt[3]{9}$$

$$f) \frac{\sqrt[3]{9}}{\sqrt[6]{3}} = \sqrt[6]{\frac{3^4}{3}} = \sqrt[6]{3^3} = \sqrt{3}$$

$$(15) \quad a) \sqrt{45} + \sqrt{20} - \sqrt{100} + \sqrt{80} = \sqrt{3^2 \cdot 5} + \sqrt{2^2 \cdot 5} - \sqrt{10^2 \cdot 5} + \sqrt{2^3 \cdot 5} = 3\sqrt{5} + 2\sqrt{5} - 10\sqrt{5} + 2^2\sqrt{5} = (3+2-10+4)\sqrt{5} = -\sqrt{5}$$

$$b) \sqrt{24} - 5\sqrt{6} + \sqrt{486} = \sqrt{2^3 \cdot 3} - 5\sqrt{6} + \sqrt{2 \cdot 3^5} = 2\sqrt{6} - 5\sqrt{6} - 3^2\sqrt{6} = -12\sqrt{6}$$

$$c) \sqrt[3]{54} - \sqrt[3]{16} = \sqrt[3]{3^3 \cdot 2} - \sqrt[3]{2^4} = 3\sqrt[3]{2} - 2\sqrt[3]{2} = \sqrt[3]{2}$$

$$d) 2\sqrt[3]{81} + \frac{1}{3}\sqrt[3]{3} - \frac{2}{5}\sqrt[3]{24} = 2\sqrt[3]{3^4} + \frac{1}{3}\sqrt[3]{3} - \frac{2}{5}\sqrt[3]{2^3 \cdot 3} =$$

$$2 \cdot 3\sqrt[3]{3} + \frac{1}{3}\sqrt[3]{3} - \frac{2}{5} \cdot 2\sqrt[3]{3} = (6 + \frac{1}{3} - \frac{4}{5})\sqrt[3]{3} = \frac{83}{15}\sqrt[3]{3}$$

$$(16) \quad a) 1,3374 \cdot 10^{15}$$

$$d) 4 \cdot 10^{-8}$$

$$b) -1,41329 \cdot 10^6$$

$$e) 5,342781 \cdot 10^2$$

$$e) 1,96421155 \cdot 10^{-8}$$

$$f) 7,5789473 \cdot 10^{-2}$$