

Alg 2 questions re 6.5 (WB)

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$$30) \quad \frac{5+\sqrt{3}}{(4+\sqrt{3})} \cdot \left(\frac{(4-\sqrt{3})}{(4-\sqrt{3})} \right) = \frac{(17-\sqrt{3})}{13}$$

$$\begin{array}{r} 5+\sqrt{3} \\ 4-\sqrt{3} \\ \hline -8\sqrt{3} - \sqrt{9} \\ 20+4\sqrt{3} \quad \downarrow 9 \\ \hline 17-\sqrt{3} \end{array} \quad \begin{array}{r} 4+\sqrt{3} \\ 4-\sqrt{3} \\ \hline 4\sqrt{3} - \sqrt{9} \\ 16+4\sqrt{3} \\ \hline 16-3 \end{array}$$

$$33 \quad \frac{3+\sqrt{x}}{2-\sqrt{x}} \cdot \left(\frac{2+\sqrt{x}}{2+\sqrt{x}} \right) = \frac{(6+5\sqrt{x}+x)}{(4-x)}$$

$$\begin{array}{r} 3+\sqrt{x} \\ 2+\sqrt{x} \\ \hline 6 \quad 3\sqrt{x} + \sqrt{x^2} \\ 6 \quad 2\sqrt{x} \\ \hline 4 + (2\sqrt{x} - \sqrt{x^2}) \\ \hline 4-x \end{array}$$

$$\frac{2+6\sqrt{x}}{2} \quad \frac{2}{2} + 6\frac{\sqrt{x}}{2}$$

$$1+3\sqrt{x}$$

$$(12) \quad \sqrt[3]{\frac{216}{24}} = \frac{\sqrt[3]{216}}{\sqrt[3]{24}} = \frac{\sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3}}{\sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3}}$$

$$\begin{array}{cc} 216 & 24 \\ \wedge & \wedge \\ 4 & 54 \\ \wedge & \wedge \\ 2 \hat{2} & 6 \quad 9 \\ \wedge & \wedge \\ 2 \hat{3} & 3 \hat{3} \end{array}$$

$$\begin{aligned} &= \frac{2 \cdot 3}{2 \sqrt[3]{3}} = \frac{6}{2 \sqrt[3]{3}} \\ &= \frac{3}{\sqrt[3]{3}} \left(\frac{\sqrt[3]{3 \cdot 3}}{\sqrt[3]{3 \cdot 3}} \right) = \frac{3 \sqrt[3]{9}}{3} = \sqrt[3]{9} \end{aligned}$$

$$17. (2\sqrt{24})(7\sqrt{18})$$

$$14\sqrt{432}$$

$$14\sqrt{(2\cdot 2\cdot 2\cdot 2\cdot 3\cdot 3)\cdot 3}$$

$$14\cdot 2\cdot 2\cdot 3\sqrt{3}$$

$$168\sqrt{3}$$

$$\begin{array}{l} 48 \quad 75 \\ 6 \wedge 8 \quad 25 \wedge 3 \quad 18 \wedge 2 \cdot 4 \\ 2 \wedge 3 \quad 4 \wedge 2 \quad 5 \wedge 3 \quad 6 \wedge 3 \quad 6 \wedge 4 \\ 2 \wedge 2 \quad 2 \wedge 3 \quad 2 \wedge 3 \quad 2 \wedge 2 \end{array}$$

$$\begin{array}{l} 80 \\ 8 \wedge 10 \\ 2 \wedge 4 \quad 2 \wedge 5 \\ 2 \wedge 2 \end{array}$$

$$20. 8\sqrt{48} - 6\sqrt{75} + 7\sqrt{80}$$

$$8\sqrt{(2\cdot 2\cdot 2\cdot 2\cdot 3)} - 6\sqrt{3\cdot 5\cdot 5} + 7\sqrt{(2\cdot 2\cdot 2\cdot 2\cdot 5)}$$

$$8\cdot 2\cdot 2\sqrt{3} - 6\cdot 5\sqrt{3} + 7\cdot 2\cdot 2\sqrt{5}$$

$$32\sqrt{3} - 30\sqrt{3} + 28\sqrt{5}$$

$$2\sqrt{3} + 28\sqrt{5}$$

$$13. \sqrt{\frac{1}{128} c^4 d^7} = \frac{1 c^2 d^3 \sqrt{d}}{8 \sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$\begin{array}{l} 128 \\ 64 \uparrow 2 \\ 8 \uparrow 8 \end{array} \sqrt{\frac{1}{128}} = \frac{1 c^2 d^3 \sqrt{2d}}{8 \sqrt{2} \cdot \sqrt{2}}$$

$$\frac{\sqrt{1 c^4 d^7}}{\sqrt{128}} = \frac{1 c^2 d^3 \sqrt{2d}}{16}$$

13)

$$\sqrt[4]{\frac{8}{9a^3}} \quad \frac{\sqrt[4]{8}}{\sqrt[4]{3 \cdot 3 a a a}} \quad \left(\frac{\sqrt[4]{3 \cdot 3 \cdot a}}{\sqrt[4]{3 \cdot 3 a}} \right)$$

$$\begin{array}{l} 72 \\ 9 \uparrow 8 \\ 3 \uparrow 3 \quad 4 \uparrow 2 \\ \quad 2 \uparrow 2 \end{array}$$

$$\frac{\sqrt[4]{72a}}{3a}$$

14.
$$\sqrt{\frac{9a^5}{64b^4}} = \frac{\sqrt{9a^5}}{\sqrt{64b^4}}$$
$$= \frac{3a^2\sqrt{a}}{8b^2}$$