3rd hour

Simplify each. Assume that all variables are positive.

1. $\sqrt{63g^4h^7} \cdot \sqrt{15g^6h^4}$ $= \sqrt{945\, g^{10} h^{11}}$

$9 \cdot 7$ $3 \cdot 5$ $105\ 9$

$3 g^5 h^5 \sqrt{105h}$

2. $\sqrt[3]{49m^5n^{-13}} \cdot \sqrt[3]{21m^7n^4}$ $\sqrt[3]{1029\ m^{12}\ n^{-9}}$

$7 \cdot 7$ $3 \cdot 7$

$\sqrt[3]{7^3}$

$\frac{m^4 \sqrt[3]{3}}{n^3}$

3. $\sqrt[5]{12c^4d} \cdot \sqrt[5]{14c^7d^3} \cdot \sqrt[5]{20c^2d^8}$ $\sqrt[5]{3360\ c^{13}\ d^{12}}$

$4 \cdot 3$ 1 $4 \cdot 5$

$2 \cdot 2 \cdot 3$ $2 \cdot 7$ $2 \cdot 2 \cdot 5$

$2c^2 d^2 \sqrt[5]{105c^3 d^2}$

Dividing radical expressions:

If $\sqrt[n]{a}$ and $\sqrt[n]{b}$ are real #'s and $b \neq 0$, then $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$

The reverse is also true:

$\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$ if a and b are positive

Simplify each. Assume that all variables are positive.

1. $\dfrac{\sqrt{24x^5y^{13}}}{\sqrt{3xy^4}} = \sqrt{\dfrac{24x^5y^{13}}{3xy^4}} = \sqrt{\dfrac{8x^4y^9}{1}}$

$2x^2y^4\sqrt{2y}$

2. $\sqrt{\dfrac{50a^5b^4}{9a^4b^{12}}} = \sqrt{\dfrac{50a}{9b^8}} = \dfrac{\sqrt{50a}}{\sqrt{9b^8}}$

$= \dfrac{5\sqrt{2a}}{3b^4}$

Simplify each. Assume that all variables are positive.

3. $\dfrac{\sqrt{48x^9y^8}}{\sqrt{2x^6y^3}} = \sqrt{24x^3y^5}$

$= 2xy^2\sqrt{6xy}$

4. $\dfrac{\sqrt[3]{2x^{16}y^5}}{\sqrt[3]{54x^3y^{11}}} = \sqrt[3]{\dfrac{x^{13}}{27y^6}}$

$= \dfrac{x^4\sqrt[3]{x}}{3y^2}$