

What would you multiply numerator and denominator by to rationalize each?

$$\frac{1}{\sqrt{g^5}} \cdot \frac{\sqrt{g}}{\sqrt{g}}$$

$$\frac{1}{\sqrt[3]{m^2}} \cdot \frac{\sqrt[3]{m}}{\sqrt[3]{m}}$$

$$\frac{1}{\sqrt[4]{c^1}} \cdot \frac{\sqrt[4]{c^3}}{\sqrt[4]{c^3}}$$

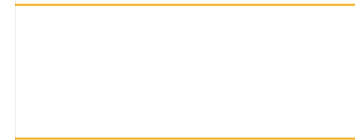
$$\frac{1}{\sqrt[7]{t^9}} \cdot \frac{\sqrt[7]{t^5}}{\sqrt[7]{t^5}}$$

What would you multiply numerator and denominator by to rationalize each?

$$\frac{1}{\sqrt[5]{P^8 Q^{11}}} \cdot \frac{\sqrt[5]{P^2 Q^4}}{\sqrt[5]{P^2 Q^4}}$$

$$\frac{1}{\sqrt[6]{c^{14} d^{23}}} \cdot \frac{\sqrt[6]{c^4 d}}{\sqrt[6]{c^4 d}}$$

$$\frac{1}{\sqrt[8]{g^{20} h^{33}}} \cdot \frac{\sqrt[8]{g^4 h^7}}{\sqrt[8]{g^4 h^7}}$$



Rationalize each denominator and simplify.

$$\frac{12}{\sqrt[4]{3^1}} \cdot \frac{\sqrt[4]{3^3}}{\sqrt[4]{3^3}}$$

$$\frac{12 \sqrt[4]{3^3}}{\sqrt[4]{3^4}} = \frac{12 \sqrt[4]{3^3}}{3} = 4 \sqrt[4]{3^3}$$

$$\frac{7}{\sqrt[4]{8}} \cdot \frac{\sqrt[4]{2}}{\sqrt[4]{2}} = \frac{7 \sqrt[4]{2}}{2}$$

Rationalize each denominator and simplify.
Assume all variables are positive.

$$2. \frac{9}{\sqrt[4]{c^2 d^3 e}} \cdot \frac{\sqrt[4]{c^2 d e^3}}{\sqrt[4]{c^2 d e^3}} = \frac{9 \sqrt[4]{c^2 d e^3}}{c d e}$$

$$\sqrt[4]{c^4 d^4 e^4}$$

Rationalize each denominator and simplify.
Assume all variables are positive.

$$3. \frac{12a}{\sqrt[4]{6a^3b^5c}} \cdot \frac{\sqrt[4]{6^3ab^3c^3}}{\sqrt[4]{6^3ab^3c^3}} = \frac{12a \sqrt[4]{6^3ab^3c^3}}{\sqrt[4]{6^4a^4b^8c^4}} = \frac{12a \sqrt[4]{6^3ab^3c^3}}{6ab^2c} = \frac{2 \sqrt[4]{6^3ab^3c^3}}{b^2c}$$

Simplify. Rationalize each denominator.
Assume all variables are positive.

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

$$4. \frac{\sqrt{3m^5p^6}}{\sqrt{11m^2p^9}} = \sqrt{\frac{3m^5p^6}{11m^2p^9}} = \sqrt{\frac{3m^3}{11p^3}} = \frac{\sqrt{3m^3}}{\sqrt{11p^3}} \cdot \frac{\sqrt{11p}}{\sqrt{11p}} = \frac{\sqrt{33m^3p}}{11p^2} = \frac{m\sqrt{33mp}}{11p^2}$$

Simplify. Rationalize each denominator.
Assume all variables are positive.

$$5. \sqrt[3]{\frac{24g^4}{16g^5}} = \sqrt[3]{\frac{3}{2g}} = \frac{\sqrt[3]{3}}{\sqrt[3]{2g}} \cdot \frac{\sqrt[3]{2^2g^2}}{\sqrt[3]{2^2g^2}} = \frac{\sqrt[3]{12g^2}}{2g}$$

you could
simplify the
fraction first

then rationalize
the denominator

$$= \frac{\sqrt[3]{12g^2}}{2g}$$

Sec 7-2: Multiplying and Dividing Radical Expressions.

Simplify. Assume all variables are positive.

$$\sqrt{5a} \cdot \sqrt{20a^7}$$

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

$$\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$$

Or simplify then multiply

$$= \sqrt{100a^8} = 10a^4$$

You could multiply then
simplify...

$$\sqrt{5a} \cdot \sqrt{20a^7} = \sqrt{5a} \cdot 2a^3\sqrt{5a} = 2a^3 \cdot 5a = 10a^4$$

Simplify. Assume all variables are positive.

$$\sqrt{14P^5Q^8} \cdot \sqrt{35P^9Q^3} = \sqrt{\underbrace{490}_{49 \cdot 10} P^{14} Q^{11}}$$
$$= \boxed{7P^7Q^5\sqrt{10Q}}$$

Simplify. Assume all variables are positive.

$$6\sqrt[3]{12c^{11}d^7} \cdot 3\sqrt[3]{10c^2d^5}$$
$$= 18 \sqrt[3]{\underbrace{120}_{8 \cdot 15} c^{13} d^{12}} = 18 \cdot 2 \cdot c^4 \cdot d^4 \sqrt[3]{15c}$$
$$= \boxed{36c^4d^4\sqrt[3]{15c}}$$