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?

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

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

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

Rationalize each denominator and simplify.

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

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

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

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

$\sqrt[4]{2^3} \cdot \sqrt[4]{2}$

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

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

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

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

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

3. $\dfrac{12a}{\sqrt[4]{6a^3b^5c}} \cdot \dfrac{\sqrt[4]{6^3ab^3c^3}}{\sqrt[4]{6^3a^1b^3c^3}} = \dfrac{12a\sqrt[4]{6^3ab^3c^3}}{6ab^2c}$

$\sqrt[4]{6^4a^4b^8c^4} = \dfrac{2\sqrt[4]{6^3ab^3c^3}}{b^2c}$

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

4. $\dfrac{\sqrt{3m^5p^6}}{\sqrt{11m^2p^9}}$

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

$\sqrt{\dfrac{3m^5p^6}{11m^2p^9}} = \sqrt{\dfrac{3m^3}{11p^3}} = \dfrac{\sqrt{3m^3}}{\sqrt{11p^3}} \cdot \dfrac{\sqrt{11p}}{\sqrt{11p}}$

$= \dfrac{\sqrt{3^3(m^3)p}}{11p^2}$

$= \dfrac{m\sqrt{33mp}}{11p^2}$

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

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

you could simplify the fraction first

then rationalize the denominator

$= \dfrac{\sqrt{3}}{4g^2}$

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Simplify. Assume all variables are positive.

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

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

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

$= \sqrt{100a^8}$

$= 10a^4$

You could multiply then simplify...

Or simplify then multiply

$\sqrt{5a} \cdot \sqrt{20a^7}$ (4.5)

$= \sqrt{5a} \cdot 2a^3\sqrt{5a}$

$= 2a^3 \cdot 5a = 10a^4$

Simplify. Assume all variables are positive.

$$\sqrt{14P^5Q^8} \cdot \sqrt{35P^9Q^3} = \sqrt{490\,P^{14}\,Q^{11}}$$

$490 = 49 \cdot 10$

$$= 7P^7Q^5\sqrt{10Q}$$

Simplify. Assume all variables are positive.

$$6\sqrt[3]{12c^{11}d^7} \cdot 3\sqrt[3]{10c^2d^5}$$

$$= 18\sqrt[3]{120\,c^{13}d^{12}} = 18 \cdot 2 \cdot c^4 \cdot d^4\sqrt[3]{15c}$$

$120 = 8 \cdot 15$

$$= 36c^4d^4\sqrt[3]{15c}$$