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

Method 1: Rationalize Denominator then simplify.

4. $\dfrac{\sqrt{3m^5p^6}}{\sqrt{11m^2p^9}} \cdot \dfrac{\sqrt{11p}}{\sqrt{11p}} = \dfrac{\sqrt{33m^5p^7}}{11mp^5}$

$\sqrt{11^2m^2p^{10}}$

$= \dfrac{m^2p^3\sqrt{33mp}}{11mp^5}$

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

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

Method 2: Simplify radicals then rationaliz denominator

$= \dfrac{m^2p^3\sqrt{3m}}{mp^4\sqrt{11p}} \cdot \dfrac{\sqrt{11p}}{\sqrt{11p}} = \dfrac{m^2p^3\sqrt{33mp}}{11mp^5}$

$\sqrt{11^2p^2}$

$mp^4 \cdot 11p$

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

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

Method 3: Simplify Fraction then rationaliz denominator.

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

then $\dfrac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\dfrac{a}{b}}$

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

$= \dfrac{\sqrt{33m^3p}}{11p^2}$

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

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

5. $\dfrac{\sqrt[3]{20g^4}}{\sqrt[3]{16g^5}} = \dfrac{\sqrt[3]{5}}{\sqrt[3]{4g}} \cdot \dfrac{\sqrt[3]{2g^2}}{\sqrt[3]{2g^2}} = \boxed{\dfrac{\sqrt[3]{10g^2}}{2g}}$

$\sqrt[3]{2^3g^3}$

Sec 7-2: Multiplying and Dividing Radical Expressions.

Simplify. Assume all variables are positive.

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

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

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

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

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

$4 \cdot 5$

$$\sqrt{5a} \cdot 2\sqrt[3]{5a}$$

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

Simplify. Assume all variables are positive.

$$\sqrt{14P^5Q^8} \cdot \sqrt{35P^9Q^3}$$

$7 \cdot 2 \qquad 7 \cdot 5$

OR $= \sqrt{490p^{14}q^{11}}$

$49 \cdot 10$

$$= \sqrt{7^2 \cdot 10\,p^{14}q^{11}}$$

$$= 7p^7q^5\sqrt{10q}$$

Simplify. Assume all variables are positive.

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

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

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

$$\sqrt[3]{12 \cdot 10} = \sqrt[3]{120}$$

$$= \sqrt[3]{8 \cdot 15}$$

$$= 2\sqrt[3]{15}$$