Rationalize the denominator.

$$\frac{12}{\sqrt[4]{8w^6x^3y^9}} \cdot \frac{\sqrt[4]{2w^2xy^3}}{\sqrt[4]{2w^2xy^3}}$$

$8 = 2^3$

$$= \frac{12\sqrt[4]{2w^2xy^3}}{2w^2xy^3} = \boxed{\frac{6\sqrt[4]{2w^2xy^3}}{w^2xy^3}}$$

Simplify

2. $\sqrt[4]{9a^6b^2} \cdot \sqrt[4]{33ab^{13}c^9} \cdot \sqrt[4]{18a^{11}c^3} \Rightarrow \sqrt[4]{5346a^{18}b^{15}c^{12}}$

$9 = 3\cdot 3$, $33 = 3\cdot 11$, $18 = 3\cdot 6$, $5346 = 81\cdot 66$

OR

$$= \sqrt[4]{3^4 \cdot 66\, a^{18}b^{15}c^{12}}$$

$$= 3a^4b^3c^3\sqrt[4]{66a^2b^3}$$

$$3a^4b^3c^3\sqrt[4]{66a^2b^3}$$

Write each in radical form.

a) $8(11m^5)^{\frac{7}{6}}$

$$8\left(\sqrt[6]{11m^5}\right)^7$$

or

$$8\sqrt[6]{(11m^5)^7} \text{ OR } 8\sqrt[6]{11^7m^{35}}$$

b) $7bc^{\frac{1}{2}}$

$$7b\sqrt{c}$$

Simplify each, use absolute value symbols where necessary.

a) $\sqrt[5]{160c^8d^{13}}$

$160 = 32\cdot 5$

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

b) $\sqrt[4]{27w^{12}x^{27}y^{23}}$

$$= |w^3|\,x^6\,|y^5|\sqrt[4]{27x^3y^3}$$