

Simplifying a Product of Radical Expressions: Problem Type 3

• Example 1

Perform the indicated operations and simplify.

$$\sqrt{\frac{x^5y^3}{2}} \cdot \frac{\sqrt{8z^6}}{\sqrt{x^8y^5z^5}}$$

Using properties of radicals and simplifying, we have

$$\begin{aligned} \sqrt{\frac{x^5y^3}{2}} \cdot \frac{\sqrt{8z^6}}{\sqrt{x^8y^5z^5}} &= \sqrt{\frac{x^5y^3 \cdot 8z^6}{2 \cdot x^8y^5z^5}} \\ &= \sqrt{\frac{4z}{x^3y^2}} \\ &= \frac{\sqrt{4z}}{\sqrt{x^3y^2}} \\ &= \frac{2\sqrt{z}}{xy\sqrt{x}} \end{aligned}$$

• • • CHECK YOURSELF 1

Perform the indicated operations and simplify.

$$\sqrt{\frac{w^8y^6}{5}} \cdot \frac{\sqrt{15x^7}}{\sqrt{w^7y^2x}}$$

• • • CHECK YOURSELF ANSWER

$$1. x^3y^2\sqrt{3w}.$$

7.5 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

For each of the following, perform the indicated operations and simplify.

1. $\sqrt{\frac{x^5y^4}{z^3}} \cdot \sqrt{\frac{18z^4}{x^2y^2}}$

2. $\frac{\sqrt{8w^8s^3}}{\sqrt{2t^8}} \cdot \sqrt{\frac{t^7s^3}{w^6}}$

3. $\sqrt{\frac{u^5w^3}{3}} \cdot \frac{\sqrt{48v^9}}{\sqrt{u^3w^3}}$

4. $\frac{\sqrt{50r^5s^6}}{\sqrt{t^{18}}} \cdot \frac{\sqrt{t^{16}}}{\sqrt{2s^3r^4}}$

5. $\sqrt{\frac{w^9x^{12}}{3}} \cdot \frac{\sqrt{27y^6}}{\sqrt{y^4x^9w^9}}$

6. $\sqrt{\frac{r^{14}s^8}{7}} \cdot \sqrt{\frac{28t^5}{r^{10}s^{15}}}$