Algebra 2 Simplifying Radical Expressions KEY

SHOW ALL WORK on the worksheet

Evaluate the expression without a calculator

1. $64^{\frac{2}{3}}$

$= 16$

2. $25^{-\frac{3}{2}}$

$= \frac{1}{125}$

3. $-27^{\frac{4}{3}}$

$= -81$

4. $(-8)^{\frac{4}{3}}$

$= 16$

Simplify each expression. Assume all variables are positive.

5. $\sqrt[3]{27} \cdot \sqrt[3]{64}$

$= 12$

6. $\frac{\sqrt[4]{36} \cdot \sqrt[4]{9}}{\sqrt[4]{4}}$

$= 3$

7. $\frac{\sqrt{3}}{\sqrt{75}}$

$= \frac{1}{5}$

8. $\frac{7\sqrt{9^5}}{\sqrt{9^7}}$

$= \frac{7}{9}$

9. $\frac{2\sqrt{x} \cdot \sqrt{x^3}}{\sqrt{64x^{14}}}$

$= \frac{1}{4x^5}$

10. $\frac{6\sqrt{x^2}\sqrt{x^2}}{81\sqrt{x^{16}}}$

$= \frac{2}{27x^6}$

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11. $5\sqrt[3]{32} - \sqrt[3]{108}$

$= 7\sqrt[3]{4}$

12. $\sqrt{\frac{20x^3y^2}{9xz^4}}$

$= \frac{2xy\sqrt{5}}{2z^2}$

13. $y^3\sqrt[5]{32x^4} - 7\sqrt[5]{x^4y^{15}}$

$= -2y^3\sqrt[5]{x^4}$

14. $\frac{\sqrt[5]{x^3}}{\sqrt[7]{x^4}}$

$= x^{\frac{1}{35}}$

15. $\sqrt{4x^5} - x\sqrt{x^3}$

$= x^2\sqrt{x}$

16. $x\sqrt{9x^3} - 2\sqrt{x^5}$

$= x^2\sqrt{x}$