Algebra 2 Radicals and Rational Exponents

HW #23: SHOW ALL WORK on the worksheet

Evaluate the expression without a calculator

1. $64^{\frac{2}{3}}$
2. $25^{-\frac{3}{2}}$
3. $-27^{\frac{4}{3}}$
4. $(-8)^{\frac{4}{3}}$

Simplify each expression. Assume all variables are positive.

5. $\sqrt[3]{27} \cdot \sqrt[3]{64}$
6. $\frac{\sqrt[4]{36} \cdot \sqrt[4]{9}}{\sqrt[4]{4}}$
7. $\frac{\sqrt{3}}{\sqrt{75}}$
8. $\frac{7\sqrt{9^5}}{\sqrt{9^7}}$
9. $\frac{2\sqrt{x} \cdot \sqrt{x^3}}{\sqrt{64x^{14}}}$
10. $\frac{6\sqrt{x^2}\sqrt{x^2}}{81\sqrt{x^{16}}}$

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

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

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

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

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

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