

Simplify. Give answers to #1 & 2 in exponential form and answers to # 3 – 20 in simplest radical or integer form.

1. $\left(2^{\frac{1}{4}} \cdot 4^{\frac{1}{3}}\right)^6$	2. $\frac{x^{\frac{5}{3}}y}{xy^{\frac{-1}{2}}}$	3. $\sqrt[5]{1215x^{15}y^9}$
4. $\sqrt[4]{32x^5y^8z^{10}}$	5. $\sqrt{6xyz} \cdot \sqrt{12y^3z^4}$	6. $\sqrt[3]{4x^3y} \cdot \sqrt[3]{20x^4y^5}$
7. $3\sqrt[4]{24x^6y^3} \cdot 5\sqrt[4]{2x^5y}$	8. $160^{\frac{1}{2}} - 40^{\frac{1}{2}}$	9. $5\left(5^{\frac{2}{7}}\right) - 7\left(5^{\frac{2}{7}}\right)$

10. $\sqrt[5]{64} + 5\sqrt{2}$	11. $\sqrt[3]{375} - 2\sqrt[3]{81}$	12. $\sqrt[4]{\frac{81x^{12}}{y^4}}$
13. $\frac{6}{\sqrt[3]{2x^2}}$	14. $\sqrt[5]{\frac{4x^5}{27y^2}}$	15. $(\sqrt[3]{6} \cdot \sqrt[4]{6})^{12}$
16. $\frac{\sqrt[3]{9} \cdot \sqrt[3]{6}}{\sqrt[6]{4}}$	17. $\sqrt{9a^2 - 9b^2}$	18. $\sqrt{2a^2 + 4a + 2}$

Algebra

- Answers: 1. $2^{\frac{11}{2}}$ 2. $x^{\frac{2}{3}}y^{\frac{3}{2}}$ 3. $3x^3y^5\sqrt{5y^4}$ 4. $2x^2y^2z^2\sqrt[4]{2xz^2}$ 5. $6y^2z^2\sqrt{2xz}$
6. $2x^2y^2\sqrt[3]{10x}$ 7. $30x^2y\sqrt[4]{3x^3}$ 8. $2\sqrt{10}$ 9. $-2\sqrt[7]{25}$ 10. $7\sqrt[5]{2}$
11. $-\sqrt[3]{3}$ 12. $\frac{\sqrt[3]{x^3}}{|y|}$ 13. $\frac{3\sqrt[3]{4x}}{x}$ 14. $\frac{x\sqrt[5]{36y^3}}{3y}$ 15. $6^7 = 279,936$
16. 3 17. $3\sqrt{a^2 - b^2}$ 18. $|a+1|\sqrt{2}$