

## Reducing Radicals and Rational Exponents

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**Write each expression in exponential form.**

1)  $\sqrt[3]{5a}$

2)  $\sqrt{n}$

3)  $(\sqrt[3]{4v})^2$

**Write each expression in radical form.**

4)  $(6x)^2$

5)  $(5x^2)^3$

6)  $n^{\frac{5}{2}}$

**Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.**

7)  $2u^{-1}v^{-\frac{2}{3}} \cdot v^0$

8)  $4x^{-\frac{3}{2}} \cdot 2x \cdot 2x^{-\frac{5}{3}}y^{\frac{1}{3}}$

9)  $\left(b^{\frac{1}{2}}\right)^2$

10)  $\left(x^{\frac{3}{4}}y^0\right)^{-\frac{4}{3}}$

11)  $\frac{x^2y^2}{x^{-\frac{1}{3}}y^0}$

12)  $\frac{2a^{\frac{3}{2}}b^{\frac{2}{3}}}{a^{\frac{3}{2}}b^{-1}}$

**Simplify.**

13)  $\sqrt[3]{320}$

14)  $\sqrt[3]{256n^7}$

15)  $\sqrt[3]{189a^6}$

## Answers to Reducing Radicals and Rational Exponents

$$1) (5a)^{\frac{1}{3}}$$

$$5) \sqrt[3]{5x^2}$$

$$9) b^{\frac{1}{4}}$$

$$13) 4\sqrt[3]{5}$$

$$2) n^{\frac{1}{2}}$$

$$6) (\sqrt{n})^5$$

$$10) \frac{1}{x}$$

$$14) 4n^2\sqrt[3]{4n}$$

$$3) (4v)^{\frac{2}{3}}$$

$$7) \frac{2v^{\frac{1}{3}}}{uv}$$

$$11) y^2x^{\frac{7}{3}}$$

$$15) 3a^2\sqrt[3]{7}$$

$$4) \sqrt{6x}$$

$$8) \frac{16x^{\frac{5}{6}}y^{\frac{1}{3}}}{x^3}$$

$$12) 2b^{\frac{5}{3}}$$