

# L6 Applying Exponent Laws

Wednesday, October 12, 2022 2:10 PM



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## Lesson 6 Applying the Exponent Laws

**Simplify.**

$$1. \left( \left( -\frac{3}{2} \right)^{-4} \right)^2 \cdot \left( \left( -\frac{3}{2} \right)^2 \right)^3 \quad \left( -\frac{3}{2} \right)^{-8} \cdot \left( -\frac{3}{2} \right)^6 \quad \left( -\frac{3}{2} \right)^{-2} \quad \left( -\frac{3}{2} \right)^2$$

**Evaluate.**

$$2. \sqrt[3]{\sqrt{64}} \quad \sqrt[3]{8} \quad 2$$

$$\frac{4}{9}$$

**Write an equivalent expression, using exponents.**

$$3. (\sqrt[5]{x^3 y})^{10} \quad \left( (x^3 y)^{\frac{1}{5}} \right)^{10} \quad (x^3 y)^2 \quad x^6 y^2$$

**Simplify.**

$$4. \frac{10^5 b^3}{2a^2 b^{-2}}$$

$$5a^3 b^5$$

$$5. \frac{4a^{-2} b^{\frac{2}{3}}}{2a^2 b^{\frac{1}{3}}}$$

$$2a^{-4} b^{\frac{1}{3}}$$

$$\frac{2b^{\frac{1}{3}}}{a^4}$$

$$6. \left( \frac{100a}{25a^5b^{-\frac{1}{2}}} \right)^{\frac{1}{2}}$$

$$(4a^{-4}b^{\frac{1}{2}})^{\frac{1}{2}}$$

$$\left( \frac{4b^{\frac{1}{2}}}{a^4} \right)^{\frac{1}{2}}$$

$$\frac{2b^{\frac{1}{4}}}{a^2}$$

$$7. \left( \frac{6x^{-1}y^4}{3x^{-5}y^{-3}} \right)^{-2}$$

$$(2x^4y^7)^{-2}$$

$$\left( \frac{1}{2x^4y^7} \right)^2$$

$$\frac{1}{4x^8y^{14}}$$

$$8. \left( \frac{4^{-2}x^3y^{-5}}{2^{-1}x^{-6}y^{-2}} \right)^{-\frac{1}{3}}$$

$$\left( \frac{2}{4^2}x^9y^{-3} \right)^{-\frac{1}{3}}$$

$$\left( \frac{x^9}{8y^3} \right)^{-\frac{1}{3}}$$

$$\left( \frac{8y^3}{x^9} \right)^{\frac{1}{3}}$$

$$\frac{2y}{x^3}$$