

## Simplifying Rational Exponents

**Simplify.**

1)  $(n^4)^{\frac{3}{2}}$

2)  $(27p^6)^{\frac{5}{3}}$

3)  $(25b^6)^{-1.5}$

4)  $(64m^4)^{\frac{3}{2}}$

5)  $(a^8)^{\frac{3}{2}}$

6)  $(9r^4)^{0.5}$

7)  $(81x^{12})^{1.25}$

8)  $(216r^9)^{\frac{1}{3}}$

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

9)  $2m^2 \cdot 4m^{\frac{3}{2}} \cdot 4m^{-2}$

10)  $3b^{\frac{1}{2}} \cdot b^{\frac{4}{3}}$

11)  $\left(p^{\frac{3}{2}}\right)^{-2}$

12)  $\left(a^{\frac{1}{2}}\right)^{\frac{3}{2}}$

$$13) \frac{2x^{-\frac{7}{4}}}{4x^{\frac{4}{3}}}$$

$$14) \frac{4x^2}{2x^{\frac{1}{2}}}$$

$$15) \frac{3x^{-\frac{1}{2}} \cdot 3x^{\frac{1}{2}} y^{-\frac{1}{3}}}{3y^{-\frac{7}{4}}}$$

$$16) \frac{3y^{\frac{1}{4}}}{4x^{-\frac{2}{3}} y^{\frac{3}{2}} \cdot 3y^{\frac{1}{2}}}$$

$$17) \left(m \cdot m^{-2} n^{\frac{5}{3}}\right)^2$$

$$18) \left(a^{-1} b^{\frac{1}{3}} \cdot a^{-\frac{4}{3}} b^2\right)^2$$

$$19) \left(\frac{x^{\frac{1}{2}} y^{-2}}{yx^{-\frac{7}{4}}}\right)^4$$

$$20) \frac{(x^3 y^2)^{\frac{3}{2}}}{\left(x^{-1} y^{-\frac{2}{3}}\right)^{\frac{1}{4}}}$$

$$21) \frac{\left(x^{-\frac{1}{2}} y^2\right)^{-\frac{5}{4}}}{x^2 y^{\frac{1}{2}}}$$

$$22) \frac{\left(x^{-\frac{1}{2}} y^4\right)^{\frac{1}{4}}}{x^{\frac{2}{3}} y^{\frac{3}{2}} \cdot x^{-\frac{3}{2}} y^{\frac{1}{2}}}$$