

Simplifying Rational Exponents

Date _____ Period _____

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

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

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

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

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

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

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

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

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

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

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

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