

## 6.1 Properties of Exponents

Write each expression in exponential form.

1)  $\sqrt[3]{6x}$

2)  $(\sqrt[3]{7k})^4$

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

4)  $(\sqrt[3]{6x})^2$

Write each expression in radical form.

5)  $(4n)^{\frac{1}{3}}$

6)  $(6a)^{\frac{2}{3}}$

7)  $(7x)^{\frac{4}{3}}$

8)  $(6p)^{\frac{3}{2}}$

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

9)  $2ba^{\frac{5}{4}} \cdot 4a^{\frac{5}{3}}b^2$

10)  $2x^{-\frac{1}{3}}y^{\frac{1}{2}} \cdot x^{-\frac{1}{2}}y^{-2}$

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

12)  $3a^{-\frac{3}{2}}b^{-\frac{1}{2}} \cdot b^{-\frac{5}{3}}$

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

14)  $(mn)^{-\frac{3}{4}}$

15)  $\left(\frac{5}{v^3}\right)^{-2}$

16)  $\left(x^{-\frac{5}{3}}y^{-1}\right)^2$

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

18)  $\frac{3x^{\frac{1}{4}}y^{\frac{5}{4}}}{4x^2y^{\frac{5}{3}}}$

19)  $\frac{4m^2n^2}{4mn^{\frac{7}{4}}}$

20)  $\frac{m^{-\frac{3}{2}}n^{-4}}{3m^{-2}n^{\frac{1}{2}}}$

**Simplify each expression.**

21)  $2^{\frac{1}{3}} \cdot 8^{\frac{1}{2}}$

22)  $4^{\frac{4}{3}} \cdot 8^{\frac{1}{3}}$

23)  $5^{\frac{2}{3}} \cdot 25^{\frac{2}{5}}$

24)  $9^2 \cdot 3^{\frac{1}{4}}$