

Properties of Rational Exponents

Date _____ Period _____

Write each expression in radical form.

1) $(4b)^{\frac{4}{3}}$

2) $x^{\frac{4}{3}}$

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

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

5) $x^{\frac{4}{5}}$

6) $(10n)^{\frac{7}{6}}$

Write each expression in exponential form.

7) $(\sqrt[5]{x})^8$

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

9) $(\sqrt[3]{5r})^2$

10) $\sqrt[4]{2x^2}$

11) $\sqrt{10b}$

12) $(\sqrt[6]{r})^5$

Simplify. Your answer should contain only positive exponents.

13) $m^{\frac{3}{2}}m^2m^2$

14) $xx^{\frac{3}{2}}$

$$15) \left(x^{\frac{3}{4}}\right)^{\frac{6}{5}}$$

$$16) \left(b^{\frac{1}{2}}\right)^{\frac{1}{2}}$$

$$17) \frac{x^{\frac{1}{2}}}{x^2}$$

$$18) \frac{x^4}{x^{-\frac{3}{2}}}$$

$$19) \frac{\left(\frac{2}{b^3}\right)^{\frac{1}{2}}}{\left(\frac{1}{b^2} \frac{1}{b^2}\right)^{-\frac{1}{2}}}$$

$$20) \left(\frac{\left(\frac{3}{x^2}\right)^0}{x^{\frac{1}{2}} x^{\frac{3}{2}}}\right)^3$$

$$21) \frac{x^{\frac{3}{2}} x^{\frac{3}{2}}}{x^{\frac{3}{2}}}$$

$$22) \left(\frac{v^{-\frac{2}{3}} v^{-\frac{2}{3}}}{v^0}\right)^{\frac{3}{2}}$$

$$23) \frac{r}{\left(\frac{5}{r^4}\right)^0 \cdot r^{-\frac{1}{4}}}$$

$$24) \left(\frac{r^{-\frac{1}{2}}}{r^{-\frac{5}{3}} r^{\frac{1}{3}}}\right)^{\frac{2}{3}}$$