

Fractional Exponents

$$\textcircled{1} \sqrt[3]{81} = 81^{\frac{1}{3}}$$

$$\textcircled{2} \sqrt[3]{8} = 8^{\frac{1}{3}}$$

$$\textcircled{3} \sqrt[4]{625} = 625^{\frac{1}{4}}$$

$$\textcircled{4} (\sqrt[3]{5})^2 = 5^{\frac{2}{3}}$$

$$\textcircled{5} \sqrt[4]{2^5} = 2^{\frac{5}{4}}$$

$$\textcircled{6} 2\sqrt{7}^3 = 7^{\frac{3}{2}}$$

$$\textcircled{7} \frac{1}{\sqrt[3]{5^2}} = 5^{-\frac{2}{3}}$$

$$\textcircled{8} 8^{\frac{2}{3}} = \sqrt[3]{8^2} \text{ or } \sqrt[3]{8^2}$$

$$\textcircled{9} 9^{\frac{1}{3}} = \sqrt[3]{9}$$

$$\textcircled{10} (-2)^{\frac{4}{5}} = \sqrt[5]{(-2)^4}$$

$$\textcircled{11} 3^{-\frac{1}{2}} = \frac{1}{\sqrt{3}} \text{ or } \frac{1}{\sqrt[2]{3}}$$

Radicals and Rational Exponents

Name _____

Date _____ Period _____

Write each expression in radical form.

1) $7^{\frac{1}{2}}$

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

13) $(5x)^{-\frac{5}{4}}$

14) $(5x)^{-\frac{1}{2}}$

3) $2^{\frac{5}{3}}$

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

15) $(10n)^{\frac{3}{2}}$

16) $a^{\frac{6}{5}}$

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

6) $2^{\frac{1}{6}}$

17) $(6v)^{1.5}$

18) $m^{-\frac{1}{2}}$

Write each expression in exponential form.

7) $(\sqrt{10})^3$

8) $\sqrt[6]{2}$

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

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

9) $(\sqrt[4]{2})^5$

10) $(\sqrt[4]{5})^5$

21) $\sqrt[4]{v}$

22) $\sqrt{6p}$

11) $\sqrt[3]{2}$

12) $\sqrt[6]{10}$

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

24) $\frac{1}{(\sqrt{3k})^5}$