

Rational Exponents

Date _____ Period _____

Write each expression in radical form.

1) $3^{\frac{1}{5}}$

2) $10^{\frac{5}{6}}$

3) $3^{-\frac{1}{3}}$

4) $7^{-\frac{5}{3}}$

Write each expression in exponential form.

5) $(\sqrt[5]{2})^6$

6) $(\sqrt[4]{3})^5$

Simplify.

7) $25^{\frac{3}{2}}$

8) $216^{\frac{4}{3}}$

9) $216^{\frac{2}{3}}$

10) $81^{\frac{3}{4}}$

11) $8^{\frac{2}{3}}$

12) $125^{\frac{1}{3}}$

13) $9^{-\frac{1}{2}}$

14) $81^{-\frac{3}{2}}$

15) $64^{-\frac{3}{2}}$

16) $125^{\frac{2}{3}}$

17) $100^{-\frac{3}{2}}$

18) $16^{-\frac{3}{2}}$

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Date _____ Period _____

Write each expression in radical form.

1) $3^{\frac{1}{5}}$

$\sqrt[5]{3}$

2) $10^{\frac{5}{6}}$

$(\sqrt[6]{10})^5$

3) $3^{-\frac{1}{3}}$

$\frac{1}{\sqrt[3]{3}}$

4) $7^{-\frac{5}{3}}$

$\frac{1}{(\sqrt[3]{7})^5}$

Write each expression in exponential form.

5) $(\sqrt[5]{2})^6$

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

6) $(\sqrt[4]{3})^5$

$3^{\frac{5}{4}}$

Simplify.

7) $25^{\frac{3}{2}}$

125

8) $216^{\frac{4}{3}}$

1296

9) $216^{\frac{2}{3}}$

36

10) $81^{\frac{3}{4}}$

27

11) $8^{\frac{2}{3}}$

4

12) $125^{\frac{1}{3}}$

5

13) $9^{-\frac{1}{2}}$

$\frac{1}{3}$

14) $81^{-\frac{3}{2}}$

$\frac{1}{729}$

15) $64^{-\frac{3}{2}}$

$\frac{1}{512}$

16) $125^{\frac{2}{3}}$

25

17) $100^{-\frac{3}{2}}$

$\frac{1}{1000}$

18) $16^{-\frac{3}{2}}$

$\frac{1}{64}$