

## Fractional Exponents and Radicals

Write each expression in exponential form.

1)  $\sqrt[4]{5}$

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

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

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

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

6)  $(\sqrt[6]{10})^7$

Write each expression in radical form.

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

8)  $3^{\frac{5}{2}}$

9)  $6^{\frac{5}{3}}$

10)  $7^{\frac{2}{3}}$

11)  $7^{\frac{5}{3}}$

12)  $10^{\frac{7}{5}}$

Evaluate each power without a calculator. Show all your steps and work.

13.  $36^{\frac{3}{2}}$

14.  $\left(\frac{9}{64}\right)^{\frac{3}{2}}$

15.  $(-216)^{\frac{4}{3}}$

16.  $81^{\frac{3}{4}}$

17.  $-5^{-2}$

18.  $\left(\frac{4}{9}\right)^{\frac{-5}{2}}$

19.  $\left(\frac{1}{27}\right)^{\frac{-2}{3}}$

20.  $\left(\frac{8}{27}\right)^{\frac{-2}{3}}$