

Name _____

Date _____

Advanced Algebra

Unit 3: Exponential, Log, and Power Functions

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EXERCISES**Practice Your Skills**

1. Match all expressions that are equivalent.

a. $\sqrt[3]{x^2}$

b. $x^{2/3}$

c. $\sqrt[3]{x}$

d. $x^{2/3}$

e. $x^{2/3}$

f. $\left(\frac{1}{x}\right)^{-3}$

g. $(\sqrt{x})^3$

h. x^2

i. $x^{3/2}$

j. $x^{2/3}$

2. Identify each function as a power function, an exponential function, or neither of these. (It may be translated, stretched, or reflected.) Give a brief reason for your choice.

a. $f(x) = 17x^2$

b. $f(t) = t^2 + 5$

c. $g(v) = 200(1.03)^v$

d. $h(x) = 2x - 7$

e. $g(y) = 3\sqrt{y-2}$

f. $f(t) = t^2 + 4t + 3$

g. $h(t) = \frac{12}{3^t}$

h. $g(w) = \frac{28}{w-5}$

i. $f(y) = \frac{8}{y^4} + 1$

j. $g(x) = \frac{x^2 + 2}{1-x}$

k. $h(w) = \sqrt[3]{4w^3}$

l. $p(x) = 5(0.8)^{(x-4)/2}$

3. Rewrite each expression in the form b^n in which n is a rational exponent.

a. $\sqrt[4]{a}$

b. $\sqrt[10]{b^8}$

c. $\frac{1}{\sqrt{c}}$

d. $(\sqrt[3]{d})^7$

4. Solve each equation and show or explain your step(s).

a. $\sqrt[4]{a} = 4.2$

b. $\sqrt[10]{b^8} = 14.3$

c. $\frac{1}{\sqrt{c}} = 0.55$

d. $(\sqrt[3]{d})^7 = 23$

