Lesson 6.1 Worksheet

Name: _____

Match the expression in rational exponent notation with the equivalent expression in radical notation.

1.) $2^{1/3}$ 2.) $2^{3/2}$ 3.) $2^{2/3}$ 4.) $2^{1/2}$

A. $\left(\sqrt{2}\right)^3$ **B.** $\sqrt{2}$ **C.** $\sqrt[3]{2}$ **D.** $\left(\sqrt[3]{2}\right)^2$

Rewrite the expression using rational exponent notation.

5.) $\sqrt[3]{12}$ 6.) $\sqrt[5]{8}$ 7.) $\left(\sqrt[3]{10}\right)^7$ 8.) $\left(\sqrt[8]{15}\right)^3$

Rewrite the expression using radical notation.

9.) $5^{\,1/4}$ 10.) $7^{\,1/3}$ 11.) $14^{\,2/5}$ 12.) $21^{\,9/4}$

Evaluate the expression without using a calculator.

13.) $8^{\,1/3}$ 14.) $\sqrt[3]{-125}$ 15.) $(-243)^{\,1/5}$ 16.) $\left(\sqrt[3]{-64}\right)^4$

17.) $\left(\sqrt[4]{16}\right)^{-7}$ 18.) $25^{\,3/2}$ 19.) $64^{-2/3}$ 20.) $\dfrac{1}{81^{\,-3/4}}$

Evaluate the expression using a calculator. Round answers to the nearest <u>hundredth</u>.

21.) $\sqrt[9]{-230}$ 22.) $25^{\,-1/3}$ 23.) $\left(\sqrt[4]{187}\right)^3$ 24.) $\dfrac{1}{(-17)^{\,3/5}}$

Solve the equation. Round answers to the nearest <u>hundredth</u>.

25.) $x^3 = 125$

26.) $x^6 + 36 = 100$

27.) $x^5 = -48$

28.) $(x - 5)^4 = 256$

29.) $7x^4 = 56$

30.) $x^3 + 40 = 25$

31.) The shot used in the men's shot put has a volume of about 905 cubic centimeters. Find the radius of the
shot. Round answer to the nearest <u>tenth.</u> $(Volume\ of\ a\ Sphere: V = \frac{4}{3}\pi r^3)$