Lesson 10 Practice Problems

1. a. What is the volume of a cube with a side length of
   i. 4 centimeters?
   ii. $\sqrt[3]{11}$ feet?
   iii. s units?

   b. What is the side length of a cube with a volume of
   i. 1,000 cubic centimeters?
   ii. 23 cubic inches?
   iii. v cubic units?

2. Write an equivalent expression that doesn't use a cube root symbol.

   a. $\sqrt[3]{1}$

   b. $\sqrt[3]{216}$

   c. $\sqrt[3]{8000}$

   d. $\sqrt[3]{\frac{1}{64}}$

   e. $\sqrt[3]{\frac{27}{125}}$

   f. $\sqrt[3]{0.027}$

   g. $\sqrt[3]{0.000125}$

3. Find the positive solution to each equation. If the solution is irrational, write the solution using square root or cube root notation.

   a. $t^3 = 216$

   b. $a^2 = 15$

   c. $m^3 = 8$

   d. $c^3 = 343$

   e. $f^3 = 181$

4. For each cube root, find the two whole numbers that it lies between.

   a. $\sqrt[3]{11}$

   b. $\sqrt[3]{80}$

   c. $\sqrt[3]{120}$

   d. $\sqrt[3]{250}$

5. Order the following values from least to greatest:

$$\sqrt[3]{530},\ \sqrt{48},\ \pi,\ \sqrt{121},\ \sqrt[3]{27},\ \frac{19}{2}$$

6. The equation $x^2 = 25$ has *two* solutions. This is because both $5 \cdot 5 = 25$, and also $-5 \cdot -5 = 25$. So, 5 is a solution, and also -5 is a solution. But! The equation $x^3 = 125$ only has one solution, which is 5. This is because $5 \cdot 5 \cdot 5 = 125$, and there are no other numbers you can cube to make 125. (Think about why -5 is not a solution!)

   Find all the solutions to each equation.

   a. $x^3 = 8$

   b. $\sqrt[3]{x} = 3$

   c. $x^2 = 49$

   d. $x^3 = \frac{64}{125}$