Lesson 1-4: Evaluate Square Roots and Cube Roots

1. Sample answer: To find the square root of a number, find the factor that is multiplied by itself to produce the number. To find a cube root, find the factor that is multiplied by itself two times to produce the number.

2. No: Sample answer: If the number is 1, its square root and cube root will both be 1. For every other such number, the square root and cube root will be different.

3. No; Sample answer: Bethany divided 27 ÷ 3 = 9. Instead, she needed to find the cube root of 27. $\sqrt[3]{27} = \sqrt[3]{3 \times 3 \times 3} = 3$

4. 2 inches

5. 9 inches

6. 20

7. 2; 2; 2; 2

8. 4; 4; 4

9. Perfect square; Sample answer: 13 x 13 = 169

10. 8 inches

11. 5 centimeters

12. Neither; Sample answer: No number squared or cubed is equal to 200.

13. 1 foot

14. 44 feet

15. No; Sample answer: $4^3 = 64$ and $\sqrt[3]{64} = 4$

16. Yes; Sample answer: An area of 9 square feet means the poster has dimensions 3 feet x 3 feet. If it were a cube, it would have a volume of 27 cubic feet. The box has a larger volume, so its sides must be larger than the poster. The poster can lie flat in the box.

17. D

18. a. Sample answer: I can find the length of each edge of the block. Since 64 is a perfect cube, I can find the cube root. Each edge is 4 cm long.

    b. No; sample answer: If I square the edge length of the block, that will give me the area of one face of the block. 4 cm x 4 cm = 16 cm sq. The square hole only has an area of 8 cm sq. The block will not fit.