7-1: Understand the Pythagorean Theorem

1. Sample answer: The Pythagorean Theorem states that in a right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

2. No; Sample answer: The sum of the squares of the side lengths of the smaller squares must be equal to the square of the side length of the larger square.

3. Sample answer: The hypotenuse is the longest side of a right triangle. The measure 18.5 units is shorter than both legs of the triangle, so this cannot be the correct length.

4. $\sqrt{41}$, about 6.4 inches

5. About 11.5 feet

6. About 8.4 mm

7. 32; ^{2}
   1,024; 3,600
   4,624
   4,624; c^2
   68
   68

8. 6.2; 8.7
   38.44; 75.69
   37.25
   b^2; 37.25
   6.1
   6.1

9. About 78.2 units

10. About 8.2 cm

11. 26 m

12. About 8.8 feet

13. a. About 41.2 cm

    b. Sample answer: She added the lengths of the legs and then took the square root of the sum instead of squaring each length first and then taking the square root of the sum.

14. 35 units

15. Sample answer: If these are the lengths of the legs of the triangle, then the length of the hypotenuse is about 18.4 centimeters long. If the hypotenuse is 14 centimeters, then the second leg is about 7.2 centimeters long. The side length 12 centimeters cannot be the hypotenuse because it is shorter than 14 centimeters.

16. C

17. B