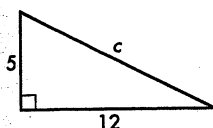
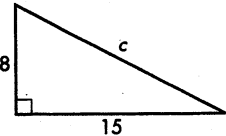
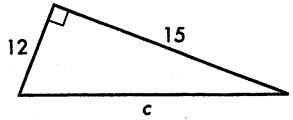
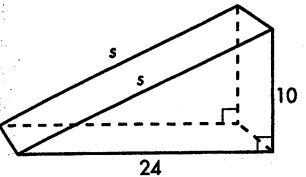
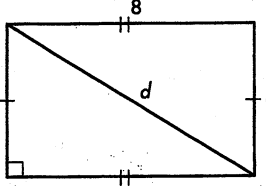
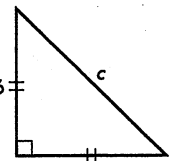
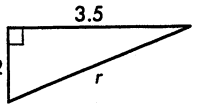
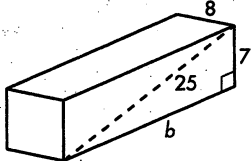
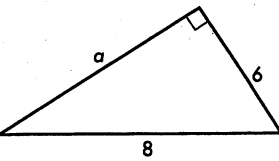


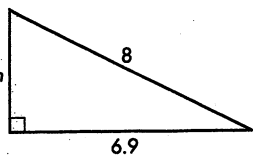
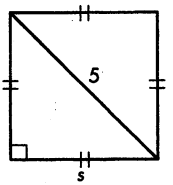
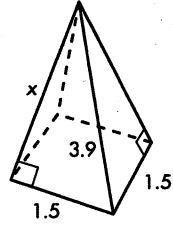
Exercise Set 10.1

In Exercises 1-15, use the Pythagorean Theorem to find each missing length. All measurements are in centimeters. Use your calculator when necessary and give answers accurate to the nearest tenth of a centimeter.

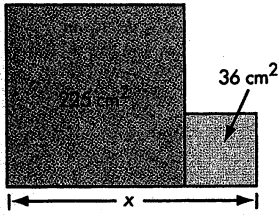
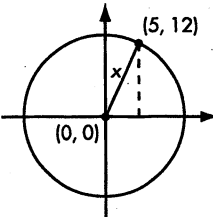
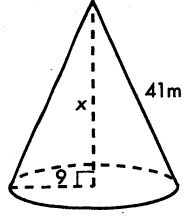
- 1.* $c = ?$ - 
- 2. $c = ?$ - 
- 3. $c = ?$ - 

- 4. $s = ?$ - 
- 5. $d = ?$ - 
- 6.* $c = ?$ - 

- 7. $r = ?$ - 
- 8.* $b = ?$ - 
- 9. $a = ?$ - 

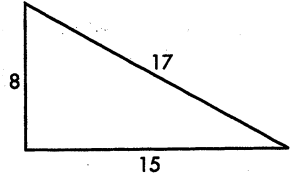
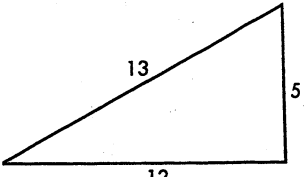
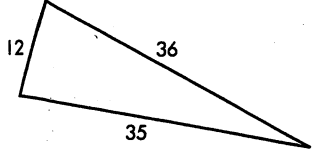
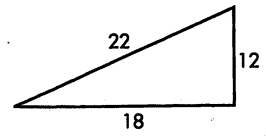
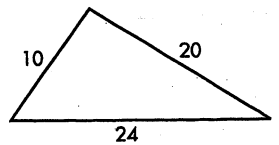
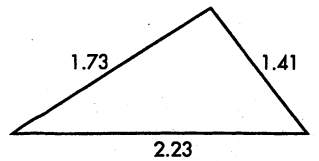
- 10. $h = ?$ - 
- 11.* $s = ?$ - 
- 12. $x = ?$ - 

In Exercises 13-15, find the measure of x in each figure.

- 13. The figures are squares. 
- 14. 
- 15. 

Exercise Set 10.2

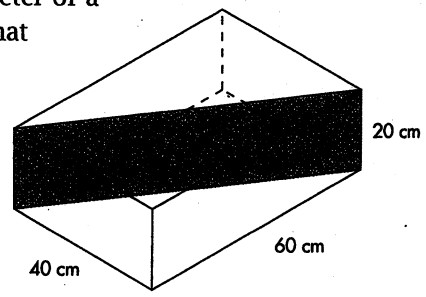
For Exercises 1-6, use the Converse of the Pythagorean Theorem to determine whether each triangle is a right triangle.

- 1.* 
- 2. 
- 3. 
- 4. 
- 5. 
- 6.* 

10.2 continued:

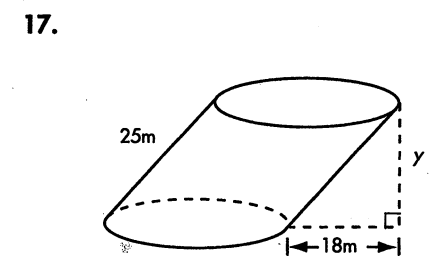
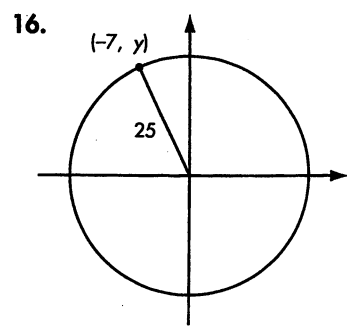
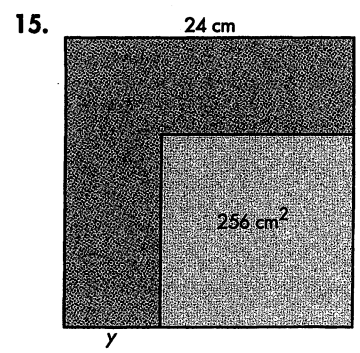
In Exercises 7-17, use the Pythagorean Theorem or its converse to solve each problem.

- Is a triangle with sides measuring 9 feet, 12 feet, and 18 feet a right triangle?
- * Find the area of a right triangle with a hypotenuse that measures 13 inches and one leg that measures 5 inches.
- Find the area of a right triangle with a hypotenuse that measures 39 cm and a leg that measures 15 cm.
- * A parallelogram has sides measuring 9 cm and 12 cm and a 15-cm diagonal. Is the parallelogram a rectangle? If not, is the diagonal measuring 15 cm the longer or shorter diagonal?
- Find the linear meters of fencing necessary to enclose the perimeter of a rectangular lot with a diagonal that measures 39 m and a side that measures 36 m.



- A rectangular piece of cardboard (shaded figure) fits snugly on a diagonal in a cardboard box, as shown at right. What is the area of the shaded cardboard rectangle? What is the length of the diagonal of the shaded rectangle?
- A triangular plot of land has boundary lines 45 meters, 60 meters, and 70 meters long. The 60-meter boundary line runs north-south. Is there a boundary line for the property that runs east-west?
- A room appearing to be rectangular has one side of length 408 cm, a second wall of length 306 cm, and one diagonal across the floor of length 525 cm. Is the room really rectangular? Explain.

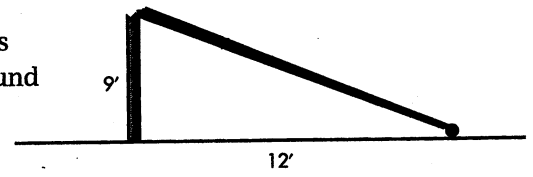
For Exercises 15-17, find y . In Exercise 15, the quadrilaterals are squares.



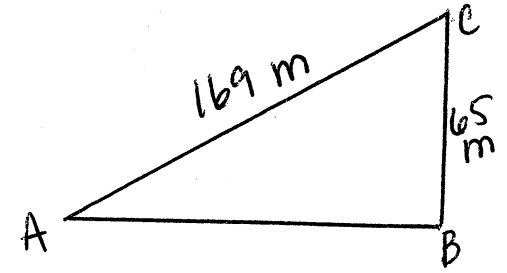
Exercise Set 10.3

In this exercise set, round answers to the nearest 0.1 unit.

- What is the length of the diagonal of a square whose sides measure 8 cm?
- * The lengths of the three sides of a right triangle are consecutive integers. Find them.
- * The lengths of the three sides of a right triangle are consecutive even integers. Find them.
- Find the area of a right triangle with a hypotenuse that measures 17 cm and one leg that measures 15 cm.
- * The diagonal of a square measures 32 meters. What is the area of the square?
- The legs of an isosceles triangle measure 6 cm, and the base measures 8 cm. Find the area.
- A rectangular garden 6 meters wide has a diagonal measuring 10 meters. Find the perimeter of the garden.
- How high up on a building will a 15-foot ladder reach if the foot of the ladder is placed five feet from the building?
- A baseball infield is a square, each side measuring 90 feet. To the nearest foot, what is the distance from home plate to second base?
- A rectangular closet is 2 feet deep, 3 feet wide, and 8 feet high. What is the length (to the nearest inch) of the longest pole that can fit within the closet? In other words, find the length of the diagonal.
- * A flagpole has cracked 9 feet from the ground and has fallen as if hinged. The top of the flagpole hit the ground 12 feet from the base. How tall was the flagpole before it fell?



12. To find the distance between two points A and B on the opposite ends of a lake, a surveyor sets a stake at point C so that angle ABC is a right angle. By measuring, she finds AC to be 169 meters and BC to be 65 meters. How far across the lake is point A from point B?



13. Dr. Rhonda Bend is exploring the Martian landscape. She is standing at point C, 288 meters from the base of a vertical cliff (point B). To find the height of the cliff, she focuses a sonic beam at a rock on the top of the cliff (point A), as shown in the figure below. The beam bounces off the rock and returns. She records the time it takes for the sonic beam to return and calculates the distance from point A to point C to be 480 meters. To the nearest meter what is the height of the cliff?

