

**EXTRA PRACTICE 26**  
**Applications Using Right Triangles**  
 Use after Section 9.6

Name \_\_\_\_\_

Example: Find the length of a diagonal of a square whose sides are 7 m long. Give an exact answer and an approximation to three decimal places.

Let  $d$  = length of the diagonal.

Then substitute 7 for  $a$ , 7 for  $b$ , and  $d$  for  $c$  in the Pythagorem equation.

$$7^2 + 7^2 = d^2$$

$$49 + 49 = d^2$$

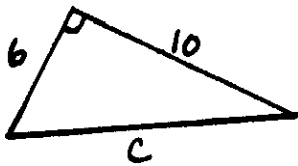
$$98 = d^2$$

$$\sqrt{98} = d$$

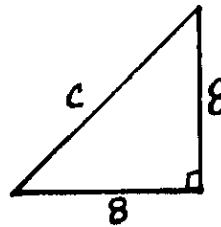
$$9.899 \approx d$$

Find the length of the third side of each triangle. Give an exact number and an approximation to three decimal places.

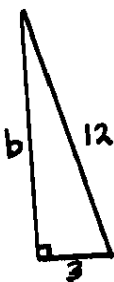
1.



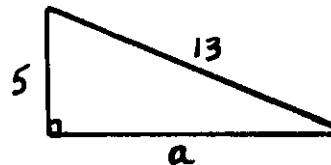
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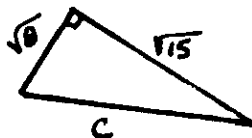
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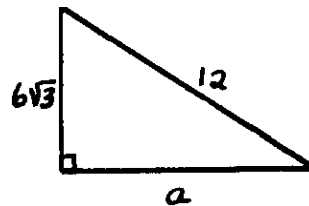
4.



5.



6.



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7. A 10-m ladder is leaning against a building. The bottom of the ladder is 6 m from the building. How high is the top of the ladder? \_\_\_\_\_
  
8. How long must a wire be in order to reach from the top of a 14-m telephone pole to a point on the ground 7 m from the foot of the pole? \_\_\_\_\_
  
9. Find the length of a diagonal of a square whose sides are 11 cm long. \_\_\_\_\_
  
10. Find the length of a diagonal of a rectangle with width 9 cm and length 12 cm.  
\_\_\_\_\_
  
11. An airplane is flying at an altitude of 3600 ft. The slanted distance directly to the airport is 16,200 ft. How far is the airplane horizontally from the airport? \_\_\_\_\_
  
12. Find the length of a diagonal of a square whose sides are  $5\sqrt{3}$  cm long. \_\_\_\_\_