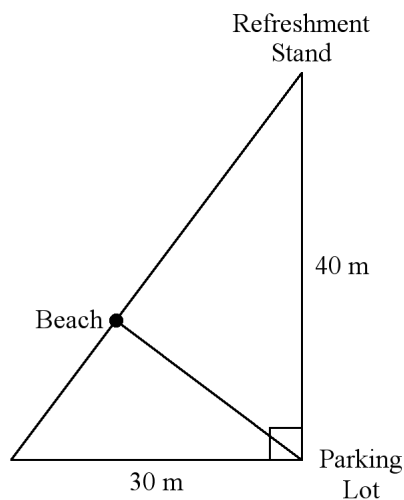


Ch 8 Study Guide**Multiple Choice**

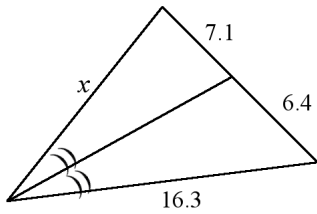
Identify the choice that best completes the statement or answers the question.

- A triangle has sides of lengths 20, 99, and 101. Is it a right triangle? Explain.
 - yes; $20^2 + 99^2 \neq 101^2$
 - no; $20^2 + 99^2 \neq 101^2$
 - no; $20^2 + 99^2 = 101^2$
 - yes; $20^2 + 99^2 = 101^2$
 - A triangle has side lengths of 28 in, 24 in, and 38 in. Classify it as acute, obtuse, or right.
 - obtuse
 - right
 - acute
3. Jason wants to walk the shortest distance to get from the parking lot to the beach.



- How far is the spot on the beach from the parking lot?
 - How far will his place on the beach be from the refreshment stand?
- 24 m; 32 m
 - 38 m; 12 m
 - 34 m; 16 m
 - 24 m; 18 m

4. What is the value of x to the nearest tenth?



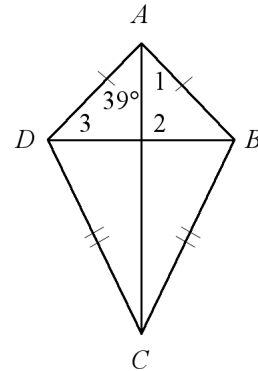
Not drawn to scale.

- a. 2.5
- b. 2.8
- c. 18.1
- d. 14.7

5. What is the sum of the angle measures of a 28-gon?

- a. 5040
- b. 4860
- c. 4680
- d. 5400

6. Find $m\angle 1$ and $m\angle 3$ in the kite. The diagram is not to scale.

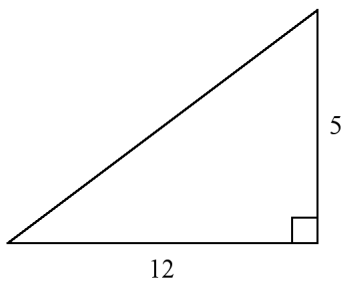


- a. 51, 39
- b. 51, 51
- c. 39, 39
- d. 39, 51

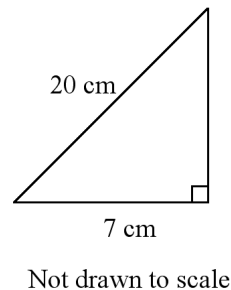
Short Answer

#7-8 Find the length of the missing side. If your answer is not an integer then leave your answer in simplest radical form. The triangle is not drawn to scale.

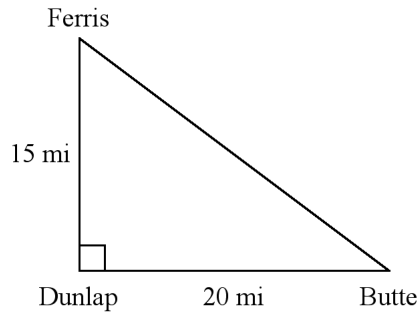
7.



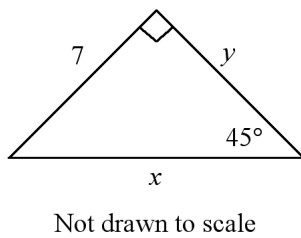
8.



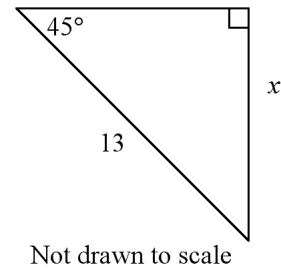
9. Wayne used the diagram to compute the distance from Ferris, to Dunlap, to Butte. How much shorter is the distance directly from Ferris to Butte than the distance Wayne found?



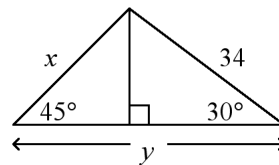
10. Find the lengths of the missing sides in the triangle. Write your answers as integers or as decimals rounded to the nearest tenth.



11. Find the value of the variable. If your answer is not an integer, leave it in simplest radical form.

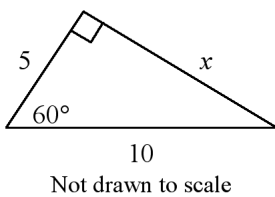


12. The area of a square garden is 72 m^2 . How long is the diagonal?
13. Find the value of x and y rounded to the nearest tenth.

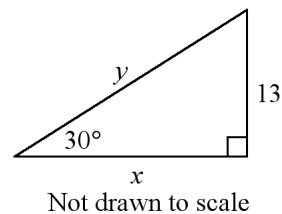


#14-15 Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

- 14.



- 15.



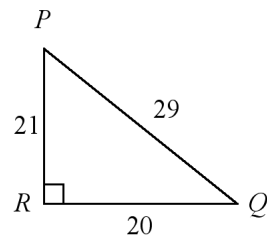
16. A piece of art is in the shape of an equilateral triangle with sides of 19 in. Find the area of the piece of art. Round your answer to the nearest tenth.

17. A conveyor belt carries supplies from the first floor to the second floor, which is 15 feet higher. The belt makes a 60° angle with the ground.

How far do the supplies travel from one end of the conveyor belt to the other? Round your answer to the nearest foot.

If the belt moves at 75 ft/min, how long, to the nearest tenth of a minute, does it take the supplies to move to the second floor?

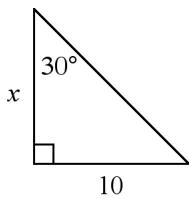
18. Write the sine, cosine, and tangent ratios for $\angle P$ and $\angle Q$.



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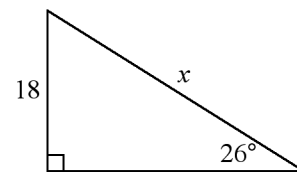
#19-21 Find the value of x . Round your answer to the nearest tenth.

19.



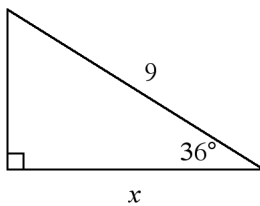
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21.



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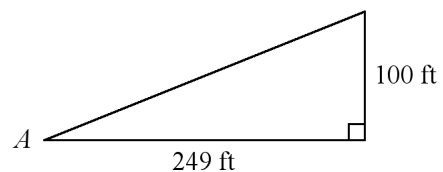
20.



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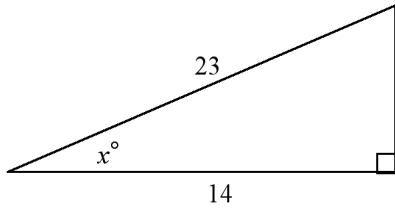
22. Viola drives 2 kilometers up a hill that makes an angle of 10° with the ground. To the nearest tenth of a kilometer, what horizontal distance has she covered?

23. A large totem pole in the state of Washington is 100 feet tall. At a particular time of day, the totem pole casts a 249-foot-long shadow. Find the measure of $\angle A$ to the nearest degree.



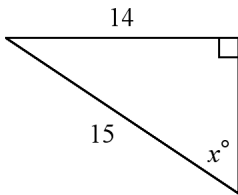
#24-26 Find the value of x . Round to the nearest degree.

24.



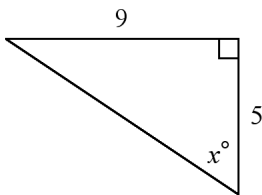
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25.



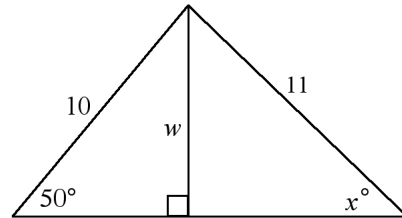
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26.



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27. Find the value of w and then x . Round lengths to the nearest tenth and angle measures to the nearest degree.



28. To find the height of a pole, a surveyor moves 140 feet away from the base of the pole and then, with a transit 4 feet tall, measures the angle of elevation to the top of the pole to be 44° . To the nearest foot, what is the height of the pole?
29. A spotlight is mounted on a wall 7.4 feet above a security desk in an office building. It is used to light an entrance door 9.3 feet from the desk. To the nearest degree, what is the angle of depression from the spotlight to the entrance door?

30. A forest ranger spots a fire from a 21-foot tower. The angle of depression from the tower to the fire is 17° .
- Draw a diagram to represent this situation.
 - To the nearest foot, how far is the fire from the base of the tower? Show the steps you use to find the solution.

Ch 8 Study Guide Answer Section

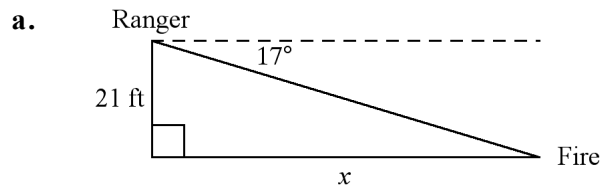
MULTIPLE CHOICE

1. D
2. A
3. A
4. C
5. C
6. D

SHORT ANSWER

7. 13
8. $3\sqrt{39}$ cm
9. 10 mi
10. $x = 9.9, y = 7$
11. $\frac{13\sqrt{2}}{2}$
12. 12 m
13. $x = 24.0, y = 46.4$
14. $5\sqrt{3}$
15. $x = 13\sqrt{3}, y = 26$
16. 156.3 in.^2
17. 17 ft; 0.2 min
18. $\tan P = \frac{20}{21}; \tan Q = \frac{21}{20}$
19. 17.3
20. 7.3
21. 41.1
22. 2 km
23. 22°
24. 53
25. 69
26. 61
27. $w = 7.7, x = 44$
28. 139 ft
29. 39°

30.



b. $\tan 17^\circ = \frac{21}{x}$ Use the tangent ratio.

$$x = \frac{21}{\tan 17^\circ} \quad \text{Solve for } x.$$

$$x \approx 69$$

The fire is about 69 feet from the base of the tower.