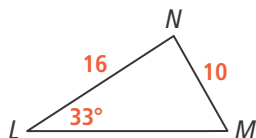




UNDERSTAND

13. **Error Analysis** Kimberly is asked to find $m\angle M$. What is her error?



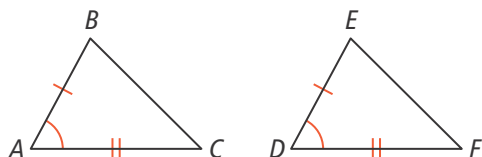
$$\frac{\sin M}{16} = \frac{\sin L}{10}$$

$$\sin M = \frac{16 \cdot \sin 33^\circ}{10}$$

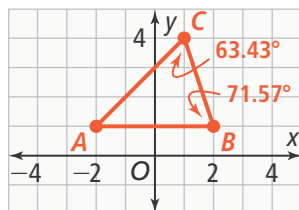
$$m\angle M = 0.8714$$



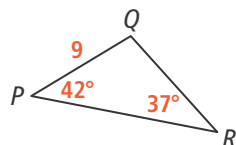
14. **Construct Arguments** Suppose you only know the lengths and angle measures of two triangles used to show they are congruent by SAS. Can you find the missing angle measures and side lengths of the triangles using the Law of Sines? Explain.



15. **Communicate Precisely** The measures of two angles are given along with the measure of the side opposite the third angle of a triangle. How can the Law of Sines be used to find missing angle measures and side lengths of the triangle? Explain.
16. **Mathematical Connections** What is AC? Use both the Distance Formula and the Law of Sines. How do the values compare? Explain.

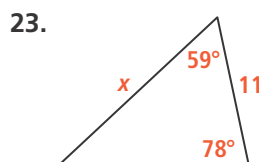
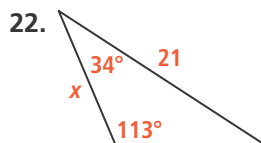
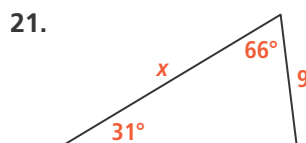
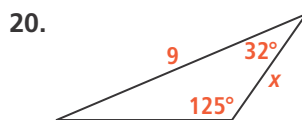
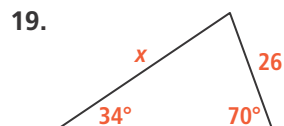


17. **Reason** Explain how to use the Law of Sines to find the perimeter of $\triangle PQR$. Then write an expression for the perimeter.

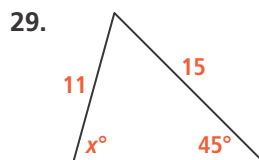
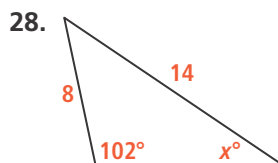
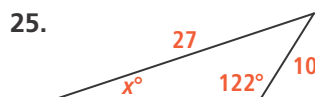
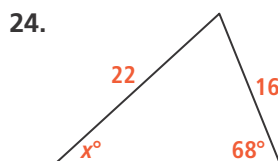


PRACTICE

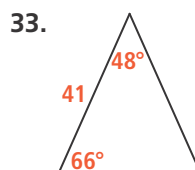
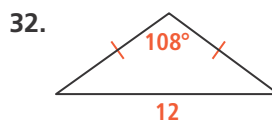
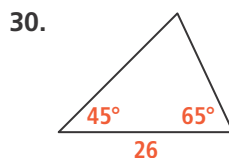
For Exercises 18–23, find each length x . Round to the nearest tenth. SEE EXAMPLES 1 AND 2



For Exercises 24–29, find each angle measure x° . Round to the nearest tenth. SEE EXAMPLE 3

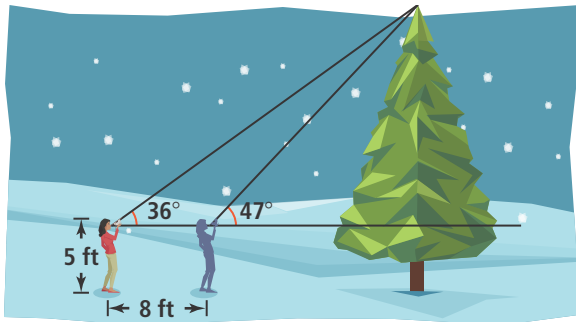


For Exercises 30–33, find the perimeter of each triangle. Round to the nearest tenth. SEE EXAMPLE 4

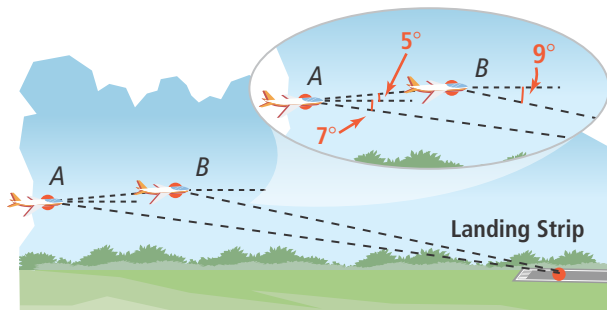


APPLY

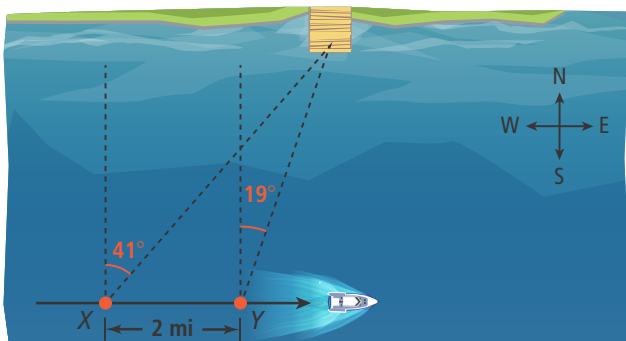
- 34. Make Sense and Persevere** To find the height of a tree, a forester uses a clinometer to measure the angle to the top of the tree. She then measures again at a distance 8 feet farther away. What is the height of the tree? Round to the nearest foot.



- 35. Model With Mathematics** At point A , the pilot of a plane looks down at an angle of 7° at the landing strip. After flying up to point B , the pilot looks down at an angle of 9° to see the landing strip. What is the distance from point B to the landing strip if the distance from point A to point B is 1,100 ft? Round to the nearest foot.

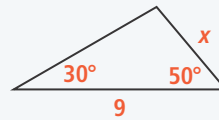


- 36. Higher Order Thinking** A boat is cruising due east. At point X , the captain measures the angle east of north to a pier. At point Y , he again measures the angle east of north to the pier. A restricted area with radius 2.5 miles is centered at the end of the pier. Does the boat enter the restricted area? Explain.

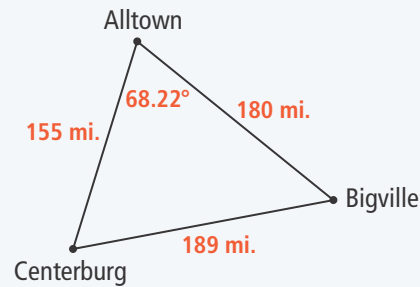


ASSESSMENT PRACTICE

- 37.** What is the value of x ? Round to the nearest tenth.

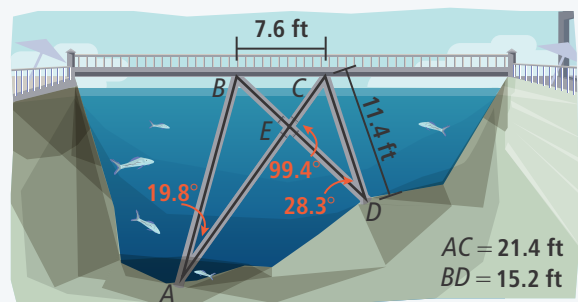


- 38. SAT/ACT** What is the measure of the angle made by the roads at Bigville?



- (A) 55.10° (C) 49.60°
 (B) 72.28° (D) 40.40°

- 39. Performance Task** An engineer is designing a walkway for an aquarium, but she only receives the partial information shown for the supports of the walkway. She must determine the lengths of the remaining supports to complete the design.



Part A What is AB to the nearest tenth of a foot?

Part B The engineer decides she wants beams from point A to the left end of the walkway and from point D to the right end of the walkway. Is there enough information given to find the lengths? If so, find the lengths. If not, explain what other information she needs.