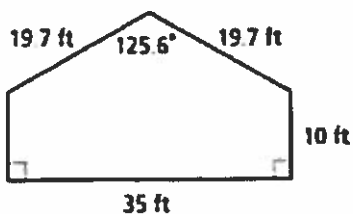


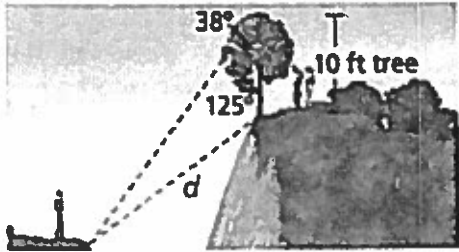
**Geometry**  
**Law of Sines and Cosines**  
**Heron's Formula**

1. A blueprint shows a reception area that has a triangular floor with sides measuring 22 ft, 30 ft, and 34 ft. What is the area of the floor to the nearest square foot?
2. How many square meters of fabric are needed to make a triangular (not a right triangle) banner with side lengths of 2.1 m, 1.5 m, and 1.4 m? Round to the nearest tenth.
3. Joe needs to paint a side of a house that has the measurements shown. What is the area of this side of the house to the nearest square foot?

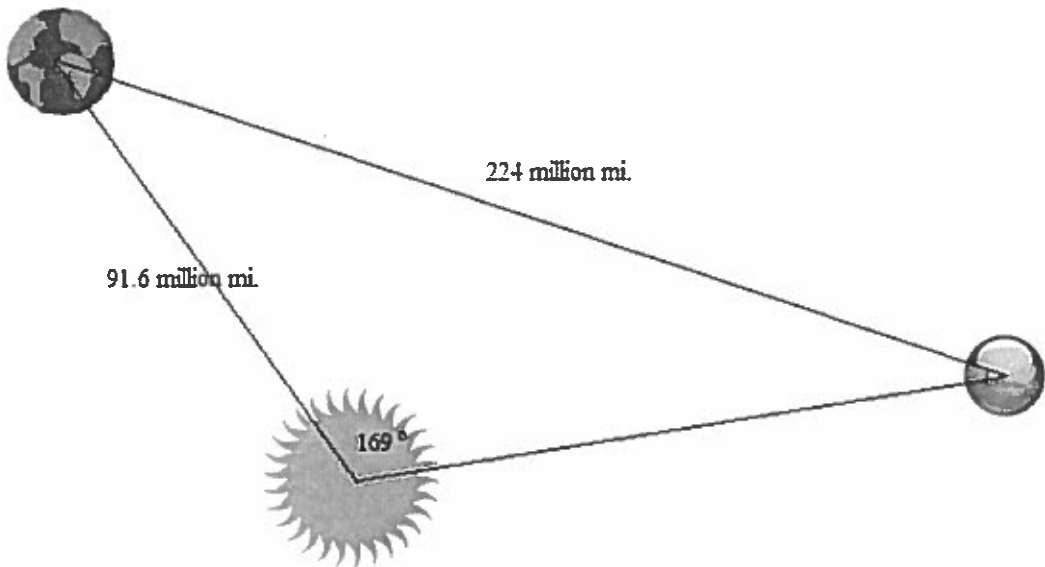


1.2; 3.8; 21; 508; 171; 133; 74; 46; 60; 1; 325; 70; 30; 37; 5

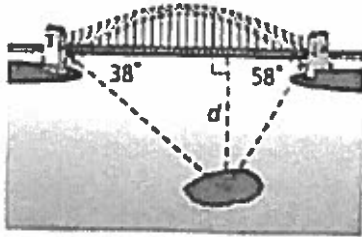
4. A group of climbers needs to determine the distance from one side of a ravine to another. They make the measurements shown. To the nearest foot, what is the distance  $d$  across the ravine?



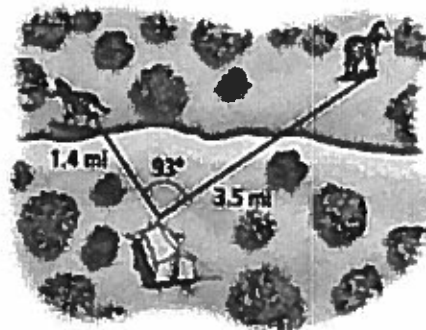
5. The diagram shows the relative positions of Earth, Mars, and the Sun on a particular date. What is the distance between Mars and the Sun on this date? Round to the nearest million miles.



6. A bridge is 325 m long. From the west end, a surveyor measures the angle between the bridge and an island to be  $38^\circ$ . From the east end, the surveyor measures the angle between the bridge and the island to be  $58^\circ$ . To the nearest meter, what is the distance  $d$  between the bridge and the island?

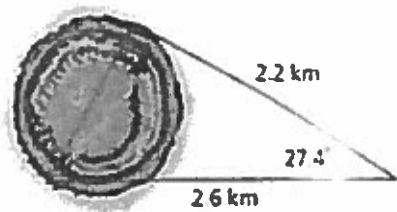


7. An ecologist is studying a pair of zebras fitted with radio-transmitter collars. One zebra is 1.4 mi from the ecologist, and the other is 3.5 mi from the ecologist. To the near of a mile, how far apart are the two zebras?



8. A graphic artist is asked to draw a triangular logo with sides measuring 15 cm, 18 cm, and 20 cm. If she draws the triangle correctly, what will be the measures of its angles to the nearest degree?

9. Barrington Crater in Arizona was produced by the impact of a meteorite. Based on the measurements shown, what is the diameter  $d$  of Barrington Crater to the nearest tenth of a kilometer?



10. A team of archeologists want to dig for fossils in a triangular area marked by three stakes. The distances between the stakes are shown in the diagram. Write the expression represents the dig area in square feet?

