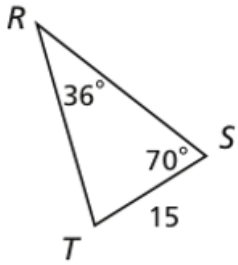
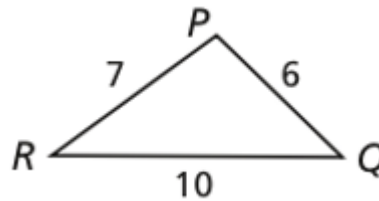


Identify whether you would use law of sines or law of cosines as the first step, then solve for the unknown.

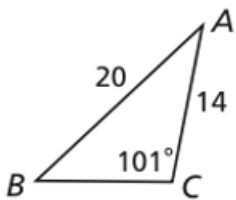
1. Solve for RT .



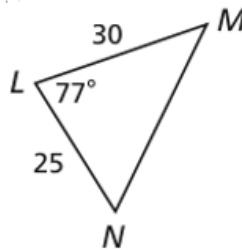
2. Solve for $m\angle Q$.



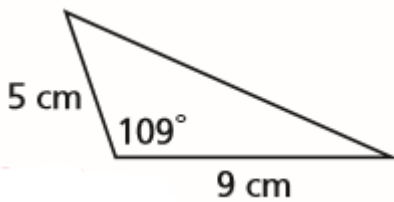
3. Solve for $m\angle B$.



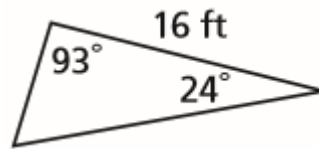
4. Solve for MN .



5. Find the perimeter of the triangle. Round to the nearest tenth.



6. Find the perimeter of the triangle. Round to the nearest tenth.



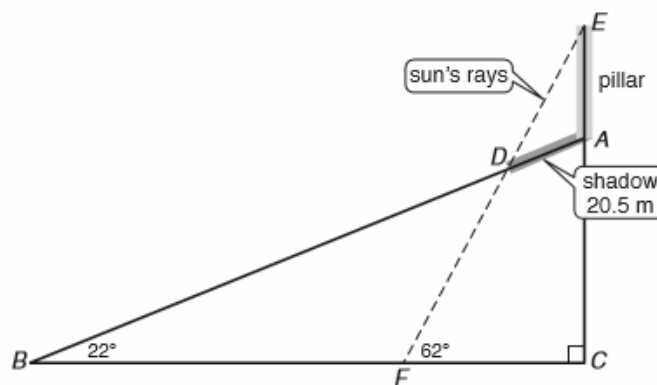
7. A carpenter makes a triangular frame by joining three pieces of wood that are 20 cm, 24 cm, and 30 cm long. What are the measures of the angles of the triangle? Round each to the nearest degree.

8. What does the law of cosines simplify to when the given angle is a right angle? Explain your answer.

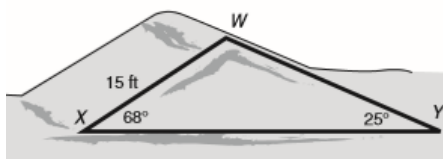
9. The port of Bonner is 5 miles due south of the port of Alston. A boat leaves the port of Alston at a bearing of N 32° E and travels at a constant speed of 6 miles per hour. After 45 minutes, how far is the boat from the port of Bonner? Round to the nearest tenth of a mile. You must draw a sketch to get credit.

10. A vertical stone pillar stands on a slope that makes a 22° angle with the horizontal. At a time of day when the angle of elevation of the sun is 62°, the stone pillar casts a shadow that is 20.5 meters long as measured along the slope.

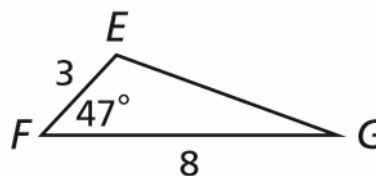
- Find $m\angle DEA$.
- Find $m\angle EDA$
- Find $m\angle DAE$
- Find the height of the pillar to the nearest tenth of a meter.



11. A BMX track has a starting hill as shown in the diagram. What is the length of the hill, WY? Round to the nearest tenth.



12. Can you use the Law of Sines to solve for unknowns in $\triangle EFG$? Explain why or why not. It is not necessary to solve.



13. Two students were asked to find x in $\triangle DEF$. Which solution is incorrect? Explain the error.

A

By the Law of Sines,
 $\frac{\sin 85^\circ}{x} = \frac{\sin 25^\circ}{12}$. So
 $12 \sin 85^\circ = x \sin 25^\circ$,
 and $x = \frac{12 \sin 85^\circ}{\sin 25^\circ} \approx 28.3$.

B

By the Law of Sines,
 $\frac{\sin 85^\circ}{x} = \frac{\sin 70^\circ}{12}$. So
 $12 \sin 85^\circ = x \sin 70^\circ$,
 and $x = \frac{12 \sin 85^\circ}{\sin 70^\circ} \approx 12.7$.

