

Assignment

Write

1. Describe the similarities and differences between the *cosine ratio* and *secant ratio*.
2. Define the term *inverse cosine* in your own words.

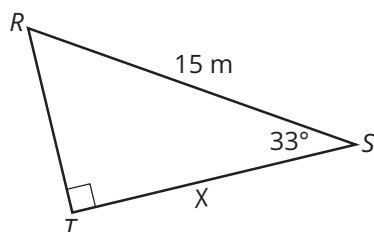
Remember

The cosine of an acute angle in a right triangle is the ratio of the length of the side that is adjacent to the angle to the length of the hypotenuse. The secant of an acute angle is the inverse of the cosine of the same angle. The inverse cosine of x , or $\cos^{-1} x$, can be used to determine the measure of an acute angle whose cosine is x .

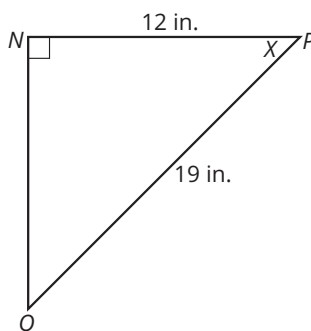
Practice

1. Use the cosine ratio, the secant ratio, or the inverse cosine to solve for x . Round each answer to the nearest tenth.

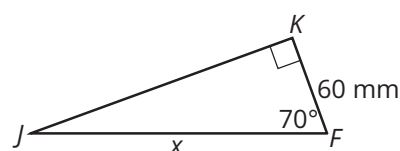
a.



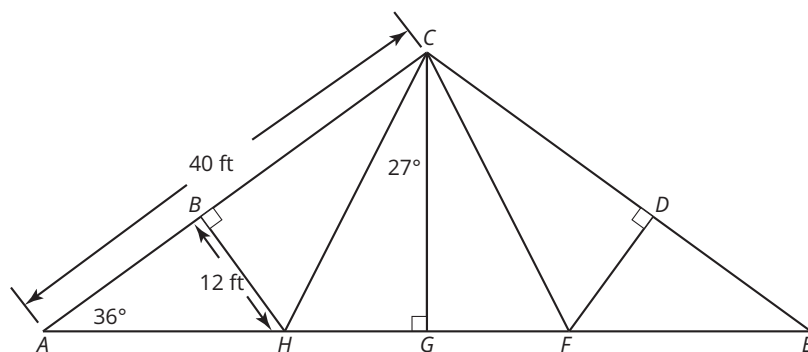
b.



c.



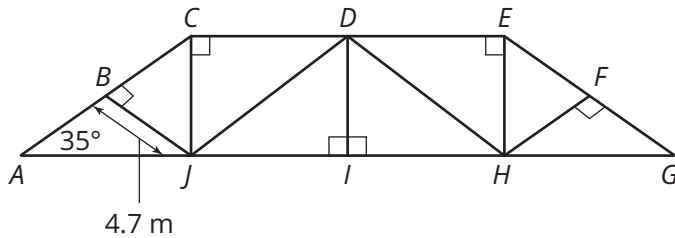
2. Consider the bridge shown. Use the figure and the fact that $\triangle AGC$ congruent to $\triangle EGC$ to complete parts (a) through (e). Round each answer to the nearest tenth.



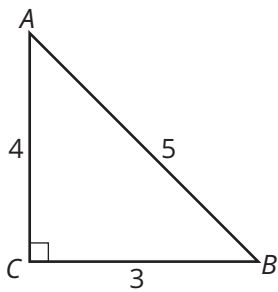
- a. Determine the width AE of the bridge
- b. Determine the height CG of the bridge.
- c. Determine the length of CH .
- d. Determine the measure of $\angle BHC$.
- e. Does \overline{CH} bisect $\angle ACG$? Explain your reasoning.

Stretch

1. Consider the bridge shown. Use the figure and the fact that $\triangle ACJ$ is congruent to $\triangle JDI$, $\triangle HDI$, and $\triangle GEH$ to complete parts (a) through (e). Round each answer to the nearest tenth.



- Determine the width AG of the bridge.
 - Determine the height CJ of the bridge.
 - Determine the length of the support beam JD .
 - Determine the measure of $\angle JDH$.
 - Determine the distance CE across the top of the bridge.
2. Consider $\triangle ABC$.

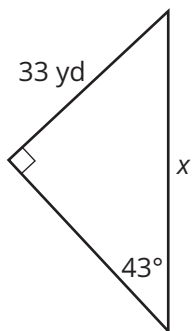


- Calculate the sine of $\angle B$. Determine what measure of $\angle A$ would have the equivalent ratio.
- Calculate the cosine of $\angle B$. Determine what measure of $\angle A$ would have the equivalent ratio.
- Calculate the tangent of $\angle B$. Determine what measure of $\angle A$ would have the equivalent ratio.

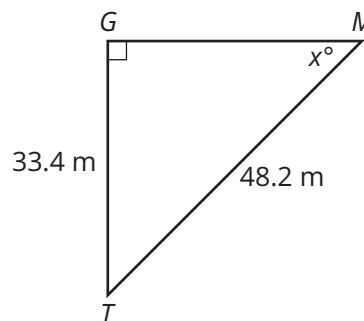
Review

1. Use the sine ratio, the cosecant ratio, or the inverse sine to solve for x . Round the answer to the nearest tenth.

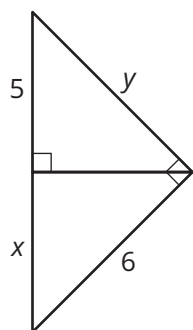
a.



b.

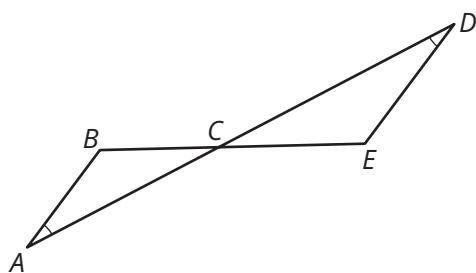


2. The geometric mean of two numbers is $4\sqrt{3}$. One of the numbers is 15. What is the other number?
3. Solve for the unknown side lengths.



4. Determine whether the triangles are similar. If so, write a similarity statement. Explain your reasoning.

a.



b.

