

Geometry
Sine, Cosine, and Tangent Ratios

Name: _____ Date: _____ Period: _____

Directions: Show all work in the indicated spaces. In order to earn full marks, your work as well as your answer must be correct. Partial credit will be given for well-presented partially correct work; circle your final answer.

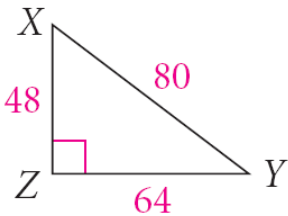
Recall:

$$\sin \theta = \frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\cos \theta = \frac{\textit{adjacent}}{\textit{hypotenuse}}$$

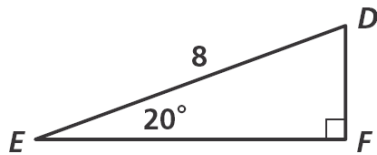
$$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$$

1. Write the sine, cosine, and tangent ratios for $\angle X$ and $\angle Y$. Express each ratio as a fraction in lowest terms and as a decimal to the nearest hundredth.

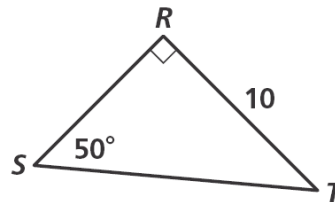


2. Find the missing lengths in each triangle. Round to the nearest hundredth.

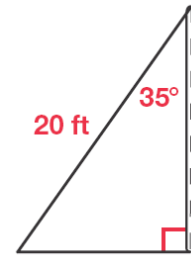
a.



b.



3. A 20-ft wire supporting a flagpole from a 35° angle with the flagpole. To the nearest foot, how high is the flagpole?

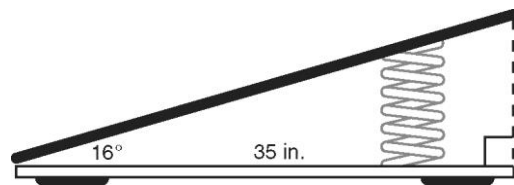


4. A ramp is used to load a 4-wheeler onto a truck bed that is 3 feet above the ground. The angle that the ramp makes with the ground is 32° . What is the horizontal distance covered by the ramp? Round to the nearest hundredth.

5. A right triangle has an angle that measures 55° . The leg adjacent to this angle has a length of 43 cm. What is the length of the other leg of the triangle? Round to the nearest tenth.

6. A 14-foot ladder makes a 62° angle with the ground. To the nearest foot, how far up the house does the ladder reach?

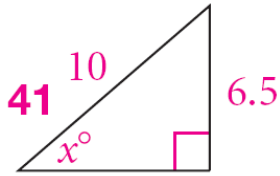
8. To the nearest inch, what is the length of the springboard shown below?



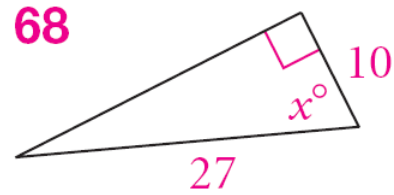
Inverse Sine, Cosine, and Tangent

7. Find the value of x . Round to the nearest degree.

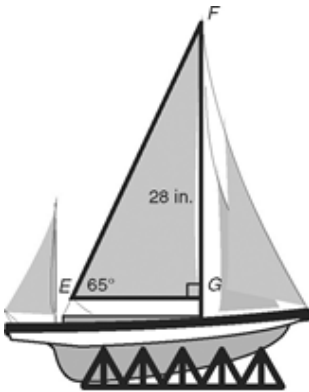
a.



b.



8. What is EF , the measure of the longest side of the sail on the model? Round to the nearest inch.



BONUS: The hypotenuse of a right triangle measures 9 inches, and one of the acute angles measures 36° . What is the area of the triangle? Round to the nearest square inch.