Sine, Cosine, and Tangent

practice b
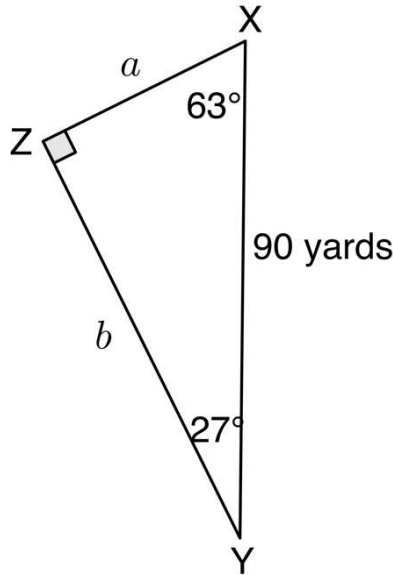
Problems 1-4 Determine the length of $\overline{YZ}$ and the length of $\overline{XZ}$. Calculate each side length using two different trigonometric ratios. Round to the nearest thousandth.

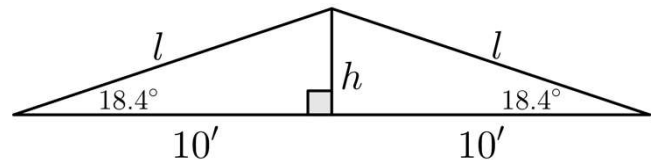1. Determine the length of $\overline{XZ}$ using $\angle X$.

2. Determine the length of $\overline{XZ}$ using $\angle Y$.

3. Determine the length of $\overline{YZ}$ using $\angle X$.

4. Determine the length of $\overline{YZ}$ using $\angle Y$.

Problems 5-7 A roof has an 10-foot run and the roof forms a $18.4°$ angle with the ceiling.

5. What is the length of a rafter, l, in **inches**? Round to the nearest inch.

6. Use trigonometry to determine how many feet of space will be available between the ridge, which is the roof's highest point, and the ceiling below. Round to the nearest foot.

7. Verify your answer to Problem 6: Use the Pythagorean theorem and your answer from Problem 5 to calculate the value of h.

Problems 8-11 Rewrite sine expressions in terms of cosine and rewrite cosine expressions in terms of sine.
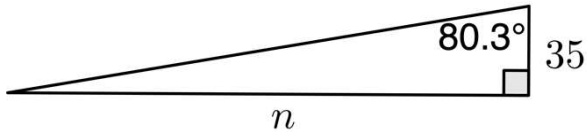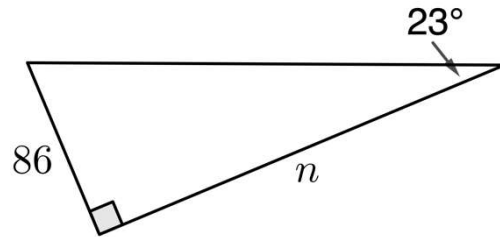
| 8. $\cos 33°$ | 9. $\cos 60°$ | 10. $\sin 73.065°$ | 11. $\sin 11°$ |

Problems 12-15 Use the information provided on the figure to determine the value of n. Show your work and round to the nearest thousandth.
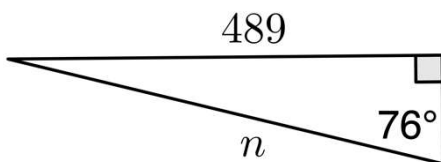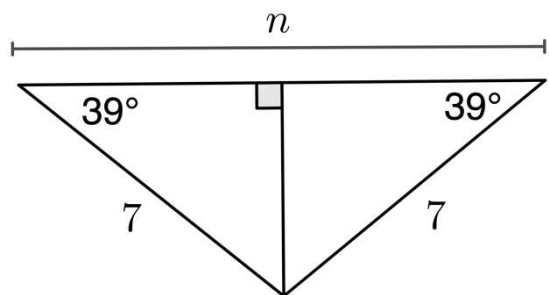
12.

13.

14.

15.

Problems 16-18 Determine whether the statement is true or false. If false, change the underlined word to make the statement true.

16. _____ The **sine** of an acute angle is the ratio of the length of the leg adjacent the angle and the hypotenuse.

17. _____ The sine of an acute angle is equal to the cosine of the **complement** of the angle.

18. _____ **Hypotenuse** refers to the side opposite the acute angle used to formulate a trig ratio.