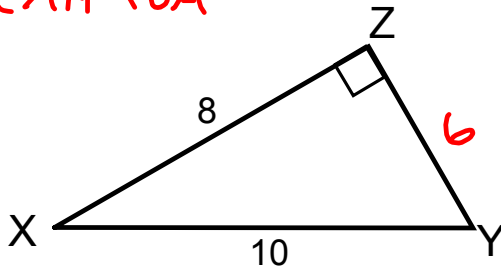


Warm-Up

Find each of the following.

SOH-CAH-TOA

$$8^2 + 6^2 = 10^2$$



1. $\sin X = \frac{6}{10} = \frac{3}{5}$

3. $\tan X = \frac{6}{8} = \frac{3}{4}$

2. $\sin Y = \frac{8}{10} = \frac{4}{5}$

4. $\cos Y = \frac{6}{10} = \frac{3}{5}$

12.1 Trigonometric Ratios Day 2

Purpose:To find the missing sides and angles of right triangles.*fomorrow*Learning Target

a. Given a right triangle, I can define the sine, cosine, and tangent ratios from an unknown angle.

b. I can use Trigonometric Ratios to solve for unknown sides and angles in a right triangle.

Finding Missing Sides

deg

You can find trigonometric ratios using your calculator!

**** **Make sure your calculator is in degree mode** ****

Examples: Find the values using your calculator

1. $\sin 45^\circ$

0.7071

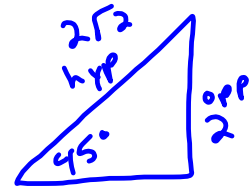
2. $\cos 87^\circ$

0.0523



3. $\tan 37^\circ$

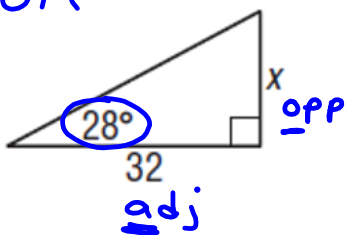
0.7536

**SOH-CAH-TOA**

Examples: Find the missing side lengths.

TOA

4.

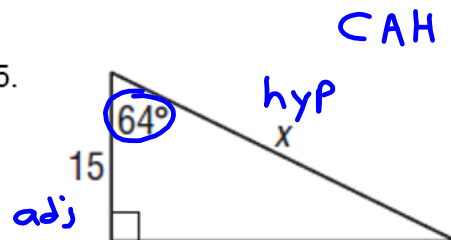


$$32 \cdot \tan 28 = \frac{x}{32} \cdot 32$$

$$32 \cdot \tan 28 = x$$

$$17.01 \approx x$$

5.



$$x \cdot \cos 64 = \frac{15}{x} \cdot x$$

$$\frac{x \cdot \cos 64}{\cos 64} = \frac{15}{\cos 64}$$

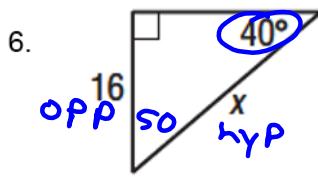
$$\rightarrow x = \frac{15}{\cos 64}$$

$$x \approx 34.22$$

SOH-CAH-TOA

Examples: Find the missing side lengths.

SOH

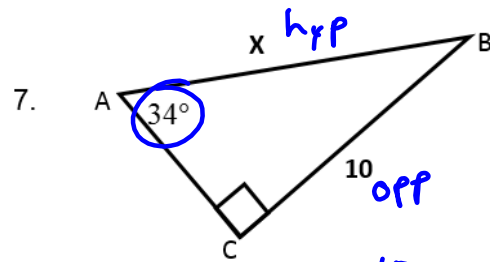


$$x \cdot \sin 40 = \frac{16}{x} \cdot x$$

$$\frac{x \cdot \sin 40}{\sin 40} = \frac{16}{\sin 40}$$

$$x = \frac{16}{\sin 40}$$

$$x \approx 24.89$$



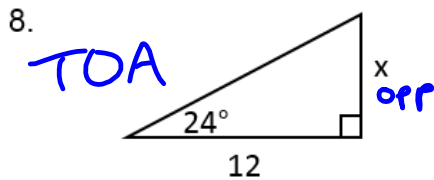
$$\sin 34 = \frac{10}{x}$$

$$x \cdot \sin 34 = 10$$

$$x = \frac{10}{\sin 34}$$

$$x \approx 17.88$$

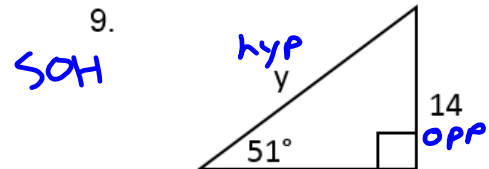
Find the missing sides of the triangle. Round your answers to the nearest tenth



$$\tan 24 = \frac{x}{12}$$

$$12 \tan 24 = x$$

$$x = \underline{5.3}$$



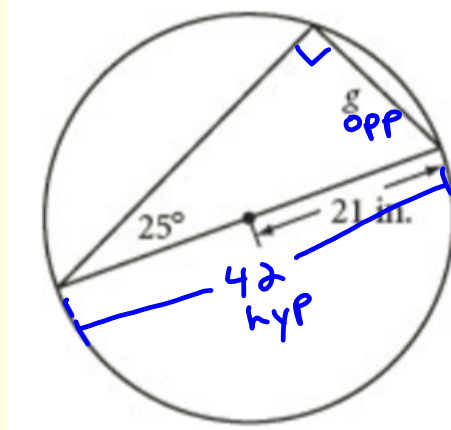
$$\sin 51 = \frac{14}{y}$$

$$y = \frac{14}{\sin 51}$$

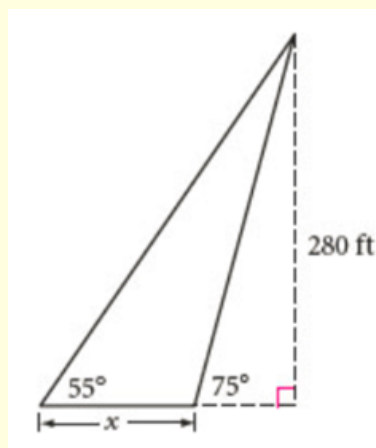
$$y = \underline{18.0}$$

10. Soon we will talk about inscribed angles and discover that their measure is half the arc that they intersect.
Find g assuming that the triangle below is a right triangle.

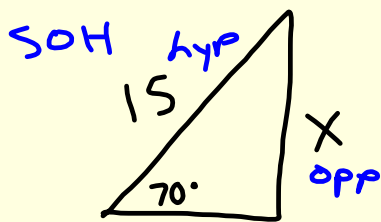
$$\sin 25 = \frac{g}{42}$$
$$42 \sin 25 = g$$
$$17.7 \approx g$$



11. Find the value of x .



12. A 15-foot ladder leans against a wall. The angle of elevation (the angle between the ladder and ground) is 70° . How far up the wall does the ladder reach?



$$\sin 70 = \frac{x}{15}$$

$$15 \sin 70 = x$$

$$14.1 \approx x$$

$$\boxed{14.1 \text{ feet}}$$

12.1 Day 2 Practice