

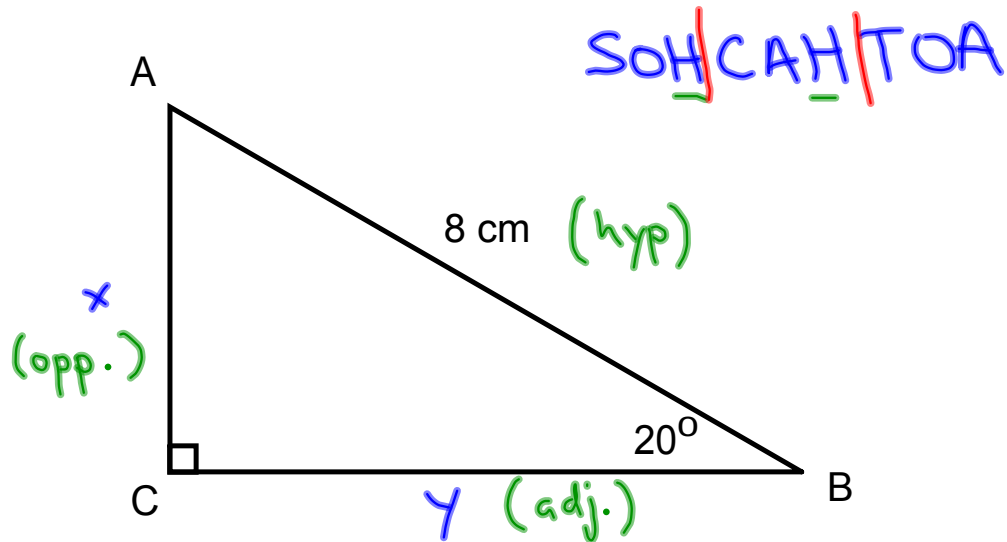
# Using Trig. Ratios

Goal:

- to use trig. ratios to find the measures of sides in a right triangle

Homework: p. 85 #1,3,4,8

Knowing the ratio between sides in a right triangle allows you to calculate one side given another.



Find the measure of AC and BC.

$$\sin 20^\circ = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 20^\circ = \frac{x}{8}$$

↓  
calculator  
↓

$$0.342 = \frac{x}{8}$$

$$0.342(8) = x$$

$$x \approx 2.74 \text{ cm}$$

$$\cos 20^\circ = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 20^\circ = \frac{y}{8}$$

↓  
calculator  
↓

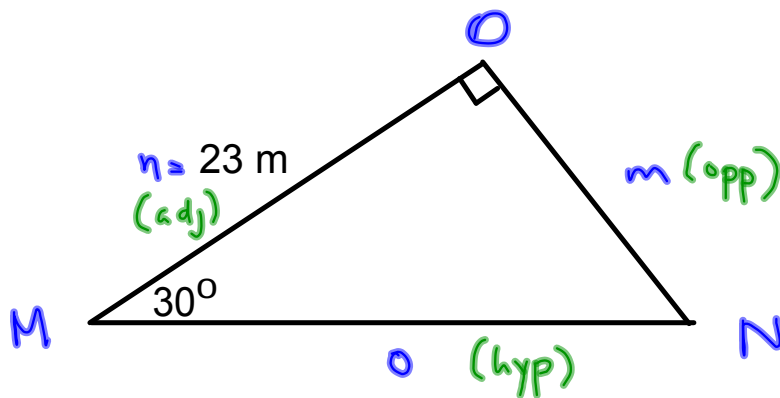
$$0.9397 = \frac{y}{8}$$

$$0.9397(8) = y$$

$$y \approx 7.52 \text{ cm}$$

Solving a triangle means finding all the side and angle measures.

Solve the triangle below:



$$\begin{aligned} m\angle N &= 180^\circ - (90 + 30)^\circ \\ &= 60^\circ \end{aligned}$$

$$\cos 30^\circ = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 30^\circ = \frac{23}{o}$$

$$0.866 = \frac{23}{o}$$

$$o = \frac{23}{0.866}$$

$$o \approx 26.56 \text{ m}$$

$$\tan 30^\circ = \frac{\text{opp}}{\text{adj}}$$

$$\tan 30^\circ = \frac{m}{23}$$

$$0.57735 = \frac{m}{23}$$

$$0.57735(23) = m$$

$$m \approx 13.30 \text{ m}$$

#1.

$\angle R$	$\frac{\text{opp}}{\text{hyp}}$ sin R	cos R	tan R
15°	0.258	0.965	0.267
30°	0.5	0.866	0.577
45°	0.707	0.707	1
60°	0.866	0.5	1.73
75°	0.965	0.258	3.732

