

## 1.3: The Sine Law

What happens if we don't have a right-angled triangle?

Draw a triangle that satisfies the following:

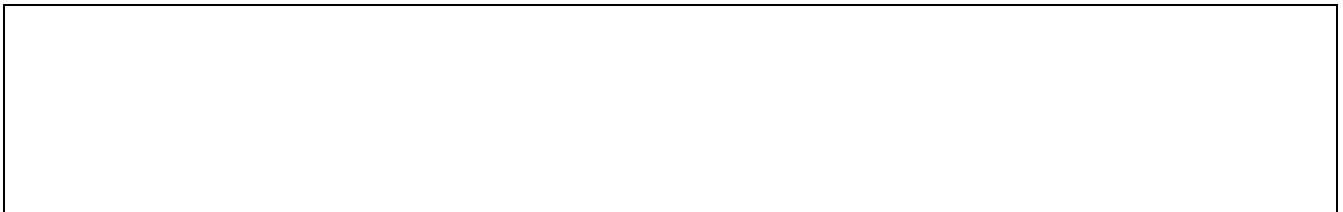
Acute Triangle ABC with  $\angle A = 60^\circ$ ,  $\angle C = 50^\circ$ , and side AB is 10 cm.

Can we, using primary trig ratios solve this triangle?

What other information is needed in order to solve this triangle?

(Geometers Sketchpad demonstration)

### The Sine Law



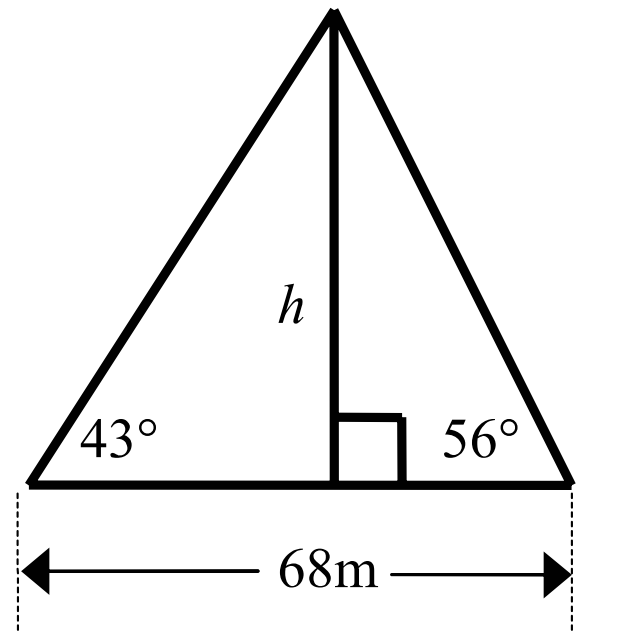
Now let's solve the above triangle using the sine law:

**EXAMPLE #1**

In triangle ABC, given that  $\angle B = 48^\circ$ ,  $\angle C = 25^\circ$ , and side a is 36 cm. Find the length of c and b correct to 1 decimal place. Include a sketch in your solution.

**EXAMPLE #2**

Solve for the value of  $h$  in the following diagram:



**EXAMPLE #3**

In triangle ABC, given that  $\angle B = 72^\circ$ , side  $c = 12$  cm and side  $b = 32$  cm, find  $\angle C$  to the nearest degree.