3.2 Proving and Applying the Sine Law

Note:

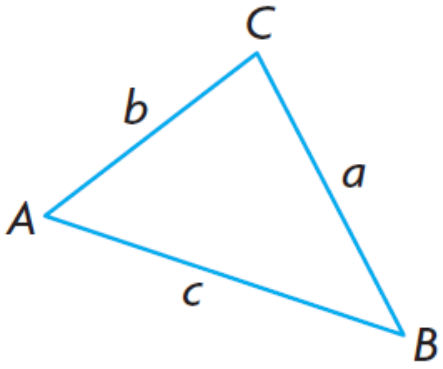
Ensure you check your answers are reasonable.

« The shortest side is across from the smallest angle.

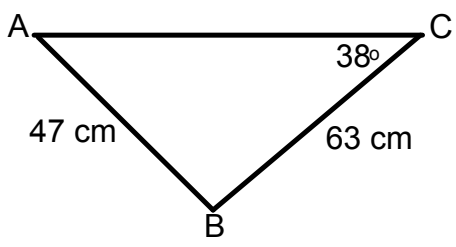
« The longest side is across from the largest angle.

Sine Law

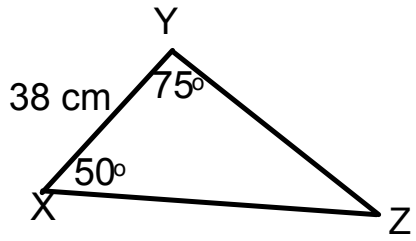
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$



Example 1: Find the measure of $\angle A$.

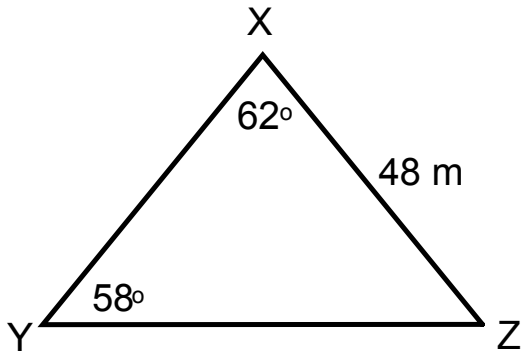


Example 2: Find the lenght of $\overline{XZ}$.



Example 3: In ΔABC, $\angle A = 85°$, $\angle C = 40°$, and $a = 55cm$.
Determine the value of b . Draw a diagram.

Example 4: Solve the triangle below.



"solve" means find
ALL the missing sides
and angles of the triangle!

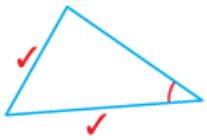
In Summary

Key Idea

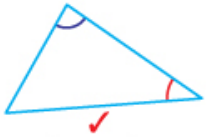
- The sine law can be used to determine unknown side lengths or angle measures in acute triangles.

Need to Know

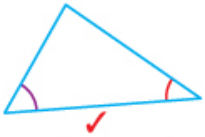
- You can use the sine law to solve a problem modelled by an acute triangle when you know:
  - two sides and the angle opposite a known side.



  - two angles and any side.



or



- If you know the measures of two angles in a triangle, you can determine the third angle because the angles must add to 180°.
- When determining side lengths, it is more convenient to use:

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

- When determining angles, it is more convenient to use:

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

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#1 - 4, 6ac, 7, 8, 10, 13

Worksheet

Attachments

PM11-3s2.gsp

Compass.html

Compass.swf

3s2e1 final.mp4

3s2e3 final.mp4