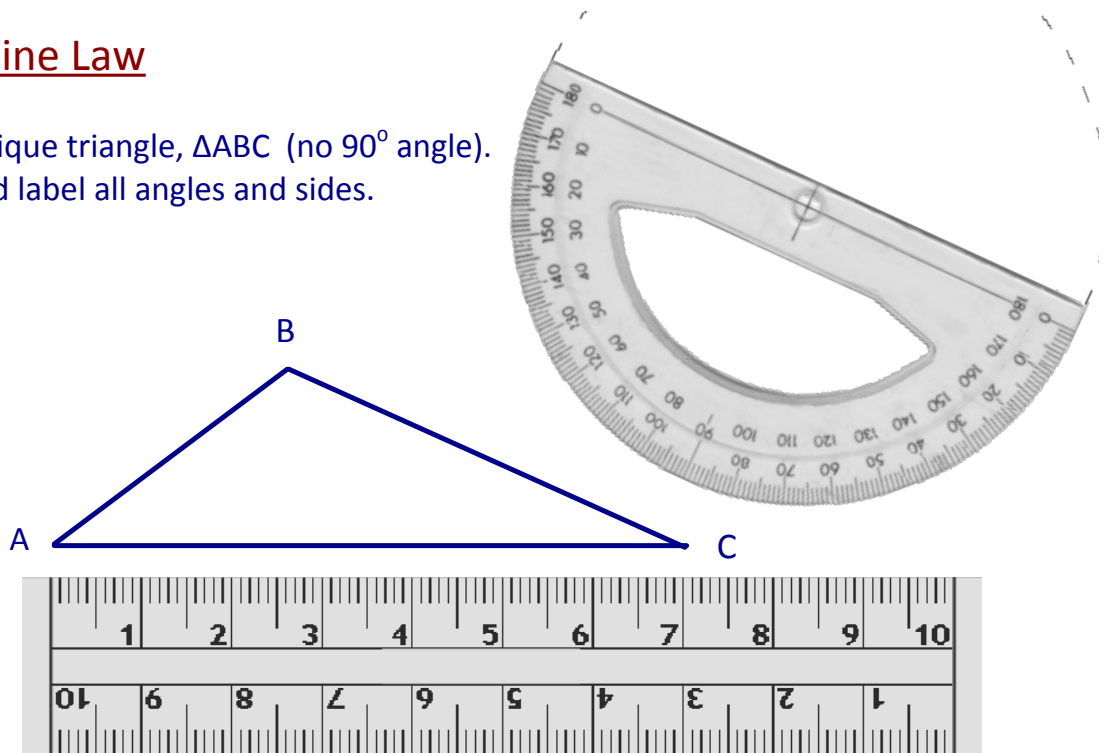


6.5 The Sine Law

Draw an oblique triangle, $\triangle ABC$ (no 90° angle).
Measure and label all angles and sides.



Now calculate:

$$\frac{\sin A}{a}$$

$$\frac{\sin B}{b}$$

$$\frac{\sin C}{c}$$

The Sine Law

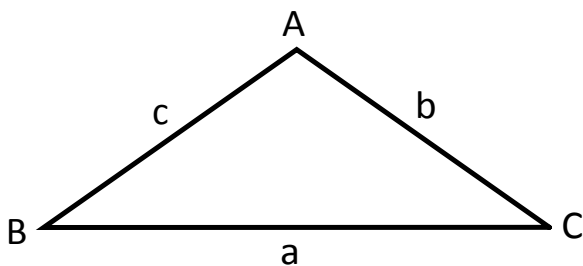
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

or

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

****These ratios can be used to find unknown sides or angles in oblique triangles.****

Development of the Sine Law:



Consider $\triangle ABC$ (no 90° angle).



Construct an altitude from A.

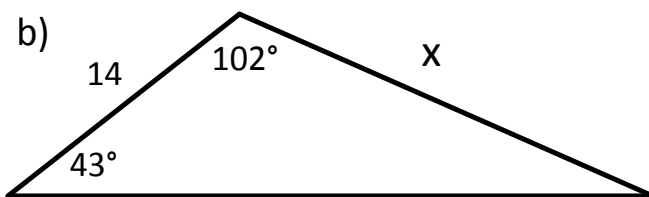
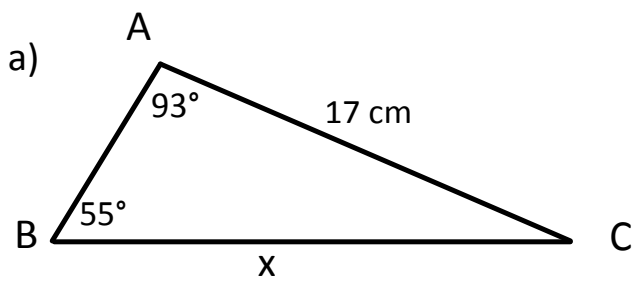


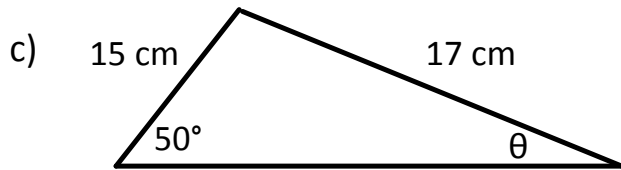
Notice that there are now 2 right triangles.

STEPS:

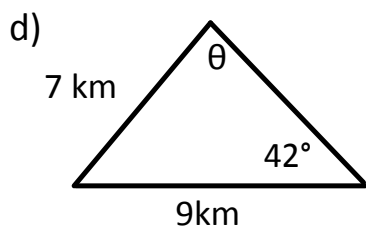
- | | |
|---|---|
| ⇒ 1. Write equations for $\sin B$ and $\sin C$. | ⇒ $\sin B = \frac{h}{c}$ $\sin C = \frac{h}{b}$ |
| ⇒ 2. Solve each equation for h . | ⇒ $c(\sin B) = h$ $b(\sin C) = h$ |
| ⇒ 3. Since both equations = h , they must equal each other. | ⇒ $c(\sin B) = b(\sin C)$ |
| ⇒ 4. Divide both sides by b and c . | ⇒ $\frac{\sin B}{b} = \frac{\sin C}{c}$ |

Ex. 1 Solve for the unknown.





We need to find an angle,
use:



Homework
Pg. 401 # C2, C3,
2b, 3a, 4b, 6b, 9, 10, 12, 15, 20

