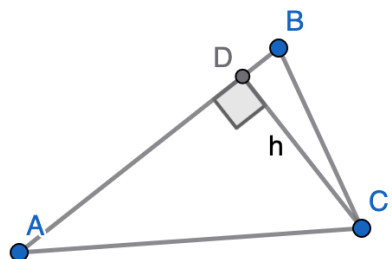


The Law of Sines

THE ALTITUDE AS THE PROOF TOOL

The Altitude as the Proof Tool



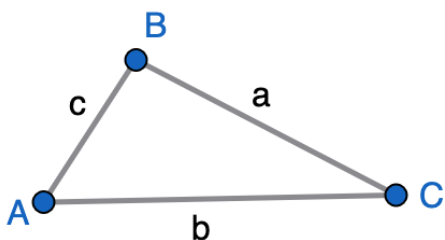
Dropping altitude h from vertex C creates a right triangle.
In that right triangle: $\sin A =$

So: $h =$

Why does the altitude not always bisect the base?

AREA FORMULA — two sides and an included angle

Area of a Triangle — Two Sides and an Included Angle



The three equal area expressions:

Area =

Area =

Area =

In words: $\text{Area} = \frac{1}{2} \times (\text{side 1}) \times (\text{side 2}) \times \sin(\text{included angle})$

DERIVING THE LAW OF SINES

Deriving the Law of Sines

USING THE LAW OF SINES

Using the Law of Sines

Ratio form:

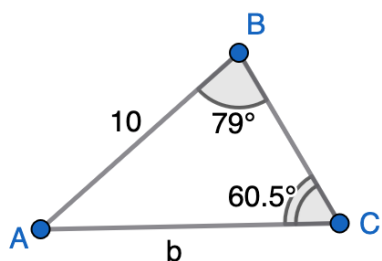
$$\sin A / a = \sin B / b = \sin C / c$$

Cross-multiplied form (useful when finding a side):

$$a / \sin A = b / \sin B = c / \sin C$$

When to use it:

Example —



Solve for b.

Find the area of the triangle.