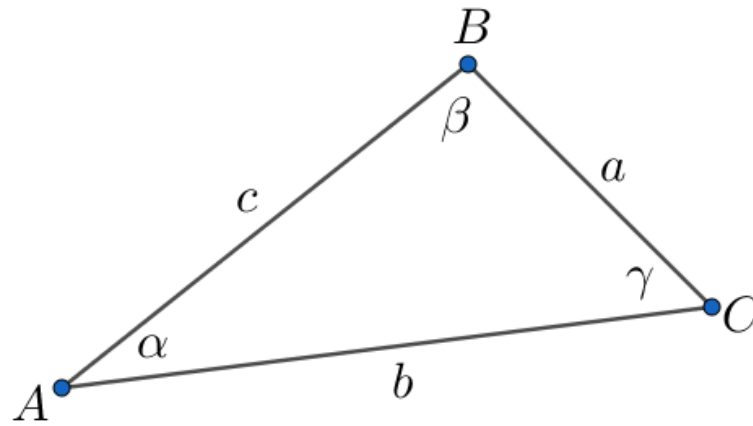
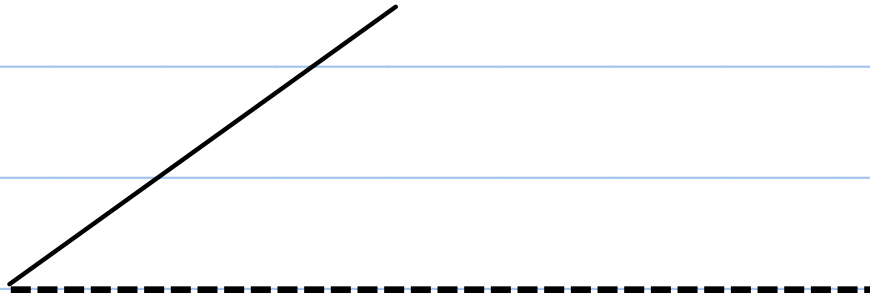


The Law of Sines

$$\frac{\sin(\alpha)}{a} = \frac{\sin(\beta)}{b} = \frac{\sin(\gamma)}{c}$$



The Ambiguous Case



The Ambiguous Case (summary)

Opposite side too short: no solution

Opposite side exactly right: one solution

Opposite side slightly too large: two solutions

Opposite side way too large: one solution

Given angle is not acute: one solution (?)

Example

$$\alpha = 46^\circ$$

$$\beta = 32^\circ$$

$$a = 13$$

Example

$$\alpha = 25^\circ$$

$$a = 5$$

$$b = 8$$

Example

$$a = 10$$

$$c = 2$$

$$\gamma = 50^\circ$$

Area

The Principle:

$\frac{1}{2} * \text{side} * \text{side} * \text{sine of included angle}$

$$\frac{1}{2}ab \cdot \sin(\gamma) \quad \frac{1}{2}ac \cdot \sin(\beta) \quad \frac{1}{2}bc \cdot \sin(\alpha)$$

Example

