

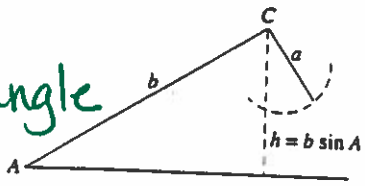
compare the attached leg to the leg opposite of angle

attached (b)
opposite (a)

$$h = b \cdot \sin A$$

CASE 1. No solution: $a < b \sin A$

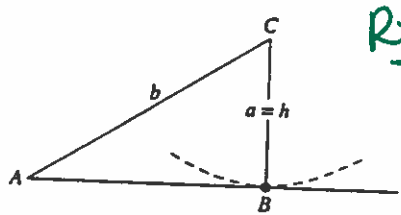
$a < h$
no triangle



CASE 2. One solution: $a = b \sin A$

$$a = h$$

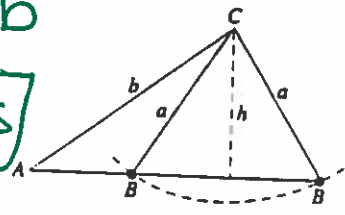
Rt Δ.



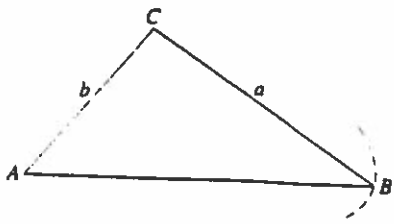
CASE 3. Two solutions: $b \sin A < a < b$

$$h < a < b$$

2 Solutions



CASE 4. One solution: $a \geq b$



Heron's Formula

If x, y, and z are the measures of the sides of a triangle, the area A is determined by the formula

$$A = \sqrt{s(s-x)(s-y)(s-z)} \text{ where } s = \frac{x+y+z}{2}$$

The preceding descriptions are independent of the symbols chosen. Any choice of symbols could be used as long as we have the case SSA.

When $\angle A$ is obtuse, there are three possibilities:

