

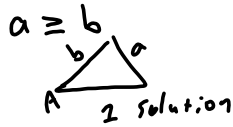
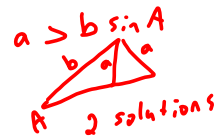
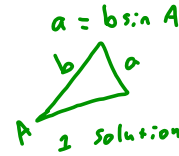
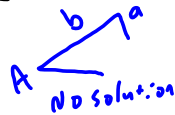
5.7 Ambiguous Case For Law of Sines

SSA case

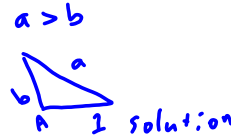
1. No triangle exists \rightarrow No solution
2. Only 1 triangle exists \rightarrow 1 solution
3. 2 triangles exist \rightarrow 2 solutions

Case 1 $A < 90^\circ$

$a < b \rightarrow a < b \sin A$



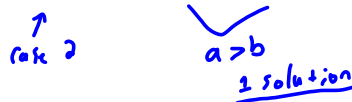
Case 2 $\rightarrow A \geq 90^\circ$



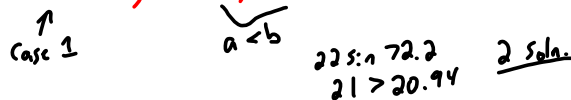
Ex: How many solns are possible for a Δ w/ $A = 63^\circ, a = 18, b = 25$



Ex: $A = 105^\circ, a = 73, b = 55$



Ex: $A = 72.2^\circ, a = 21, b = 22$



Soln 1

$$\frac{\sin 72.2}{21} = \frac{\sin B}{22}$$

$$22 \sin 72.2 = 21 \sin B$$

$$\frac{22 \sin 72.2}{21} = \sin B$$

$$\sin^{-1}(\text{ANS}) \approx 85.9^\circ = B$$

OR $180 - 85.9 \approx 94.1^\circ = B$