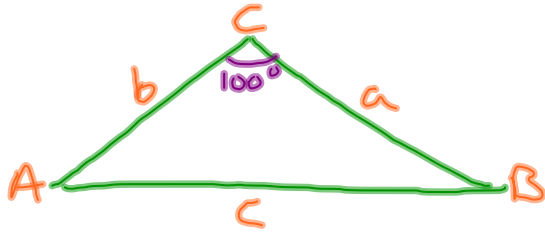


Section 9.2: Law of Sines



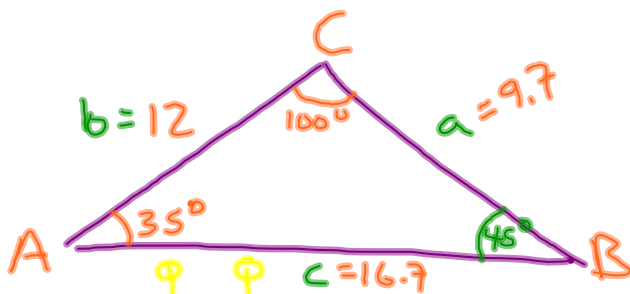
oblique = not right
 obtuse 1 angle $> 90^\circ$
 acute 3 angles $< 90^\circ$

Solve triangles
 Find all angles & sides

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

works for ASA, AAS
 Ambiguous SSA

Solving Triangles ASA, AAS



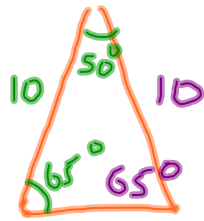
~~$$\frac{12}{\sin 45^\circ} = \frac{a}{\sin 35^\circ}$$~~

$$\frac{12}{\sin 45^\circ} = \frac{c}{\sin 100^\circ}$$

~~$$\frac{12 \sin 35^\circ}{\sin 45^\circ} = \frac{a \sin 45^\circ}{\sin 45^\circ}$$~~

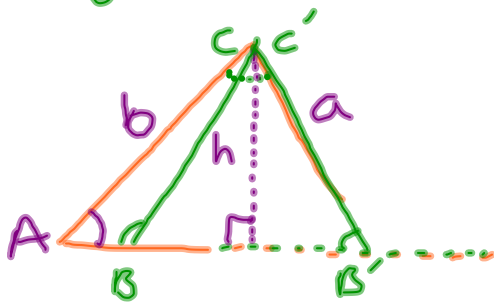
Area of an Oblique Triangle (SAS)

$$\text{Area} = \frac{1}{2} ab \sin C = \frac{1}{2} ac \sin B = \frac{1}{2} bc \sin A$$



$$\begin{aligned} \text{Area} &= \frac{1}{2} \cdot 10 \cdot 10 \cdot \sin 50^\circ \\ &= 38.3 \text{ u}^2 \end{aligned}$$

Ambiguous Case SSA



$$h = b \sin A$$

| | |
|------------|--------------------------|
| # Δ | $a < h$ |
| 0 | $a = h$ 1 right Δ |
| 1 | $a > h$ |
| 2 | $a \geq b$ |