

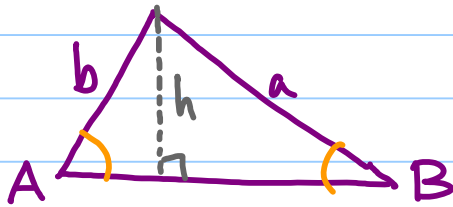
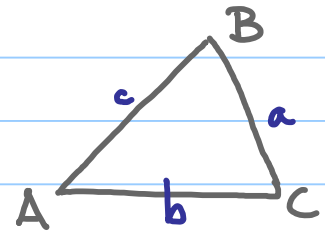
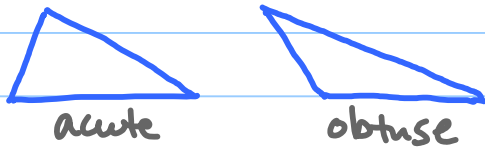
11/27 TUE

"Degrees"

SOHCAHTOA

Ch 6.1 (part 1) Law of Sines

Oblique Triangles - are not right Δ 's



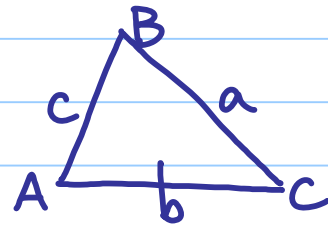
$$\sin A = \frac{h}{b} \quad \sin B = \frac{h}{a}$$

$$b \sin A = h \quad h = a \sin B$$

$$b \sin A = a \sin B$$

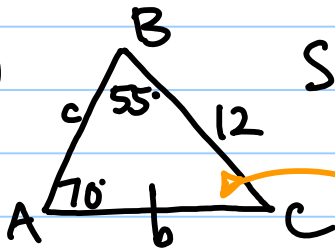
Law of Sines

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



$$m\angle A + m\angle B + m\angle C = 180^\circ$$

Ex 1)
AAS



Solve the Δ .

→ Find $m\angle C, b, c$

$$m\angle C = 180 - (70 + 55) = 55^\circ$$

Law of Sines:

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

$$\frac{12}{\sin 70^\circ} = \frac{b}{\sin 55^\circ}$$

$$12 \sin 55^\circ = b \sin 70^\circ$$

$$\frac{12 \sin 55^\circ}{\sin 70^\circ} = b$$

$$10.46 \approx b$$

$$c: \frac{c}{\sin 55^\circ} = \frac{12}{\sin 70^\circ}$$

$$c = \frac{12 \sin 55^\circ}{\sin 70^\circ} \approx 10.46$$

→ isos Δ

ex 2) Solve the Δ . given

AAS

$m\angle A = 180 - (107 + 30) = 43^\circ$

$$\frac{126}{\sin 30^\circ} = \frac{a}{\sin 43^\circ} \quad a = \frac{126 \sin 43^\circ}{\sin 30^\circ} = 171.86$$

$$\frac{126}{\sin 30^\circ} = \frac{b}{\sin 107^\circ} \quad b = \frac{126 \sin 107^\circ}{\sin 30^\circ} = 240.99$$

ex 3) Solve the Δ given $m\angle A = 35^\circ$, $m\angle B = 25^\circ$, $c = 68$.

ASA

$180 - (35 + 25) = 120^\circ$

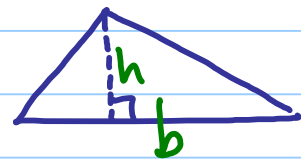
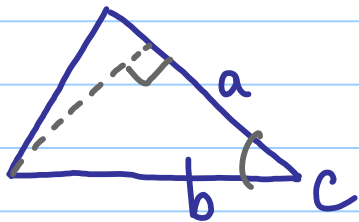
$$\frac{68}{\sin 120^\circ} = \frac{b}{\sin 25^\circ} = \frac{a}{\sin 35^\circ}$$

$$a = \frac{68 \sin 35^\circ}{\sin 120^\circ} = 45.04$$

$$b = \frac{68 \sin 25^\circ}{\sin 120^\circ} = 33.18$$

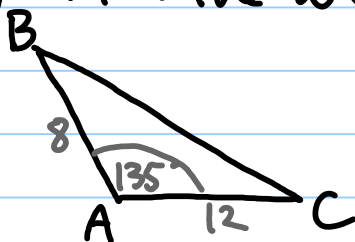
Area of a Δ
 SAS • 2 sides & included angle

$$\text{Area} = \frac{1}{2}bh$$



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

ex 4) Find the area of a Δ given $c = 8$, $b = 12$, $m\angle A = 135^\circ$



SAS

$$\begin{aligned} \text{Area} &= \frac{1}{2}bc \sin A \\ &= \frac{1}{2}(12)(8)\sin 135^\circ = 33.94 \text{ units}^2 \end{aligned}$$

Hw: p 651, # 2-16 even, 33-38 all