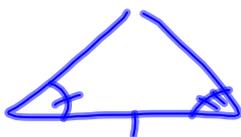


ASA



SAS

SSS

AAS

AAA

SSA

6-1 - 6-2

LAW OF SINES AMBIGUOUS CASE

ASA works for the Law of Sines

AAS works for the Law of Sines

SSS works for the Law of Cosines

SAS works for the Law of Cosines

SSA doesn't always work - sometimes there are two possible solutions

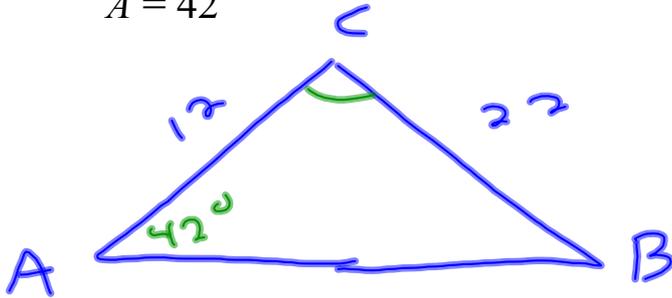
To know if it works, make an accurate sketch

Ex 1 Solve triangle ABC

$$a = 22$$

$$b = 12$$

$$A = 42^\circ$$



$$\frac{\sin 42^\circ}{22} = \frac{\sin 116.6^\circ}{c}$$

$$\frac{\sin 42^\circ}{22} = \frac{\sin B}{12}$$

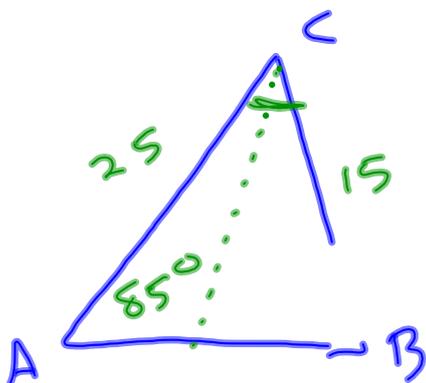
$$B \approx 21.4^\circ \quad C \approx 116.6^\circ \quad c \approx 29.4$$

Ex 2 Solve triangle ABC

$$a = 15$$

$$b = 25$$

$$A = 85^\circ$$



~~$$\frac{\sin 85^\circ}{15} = \frac{\sin B}{25}$$~~

~~$$B \approx$$~~

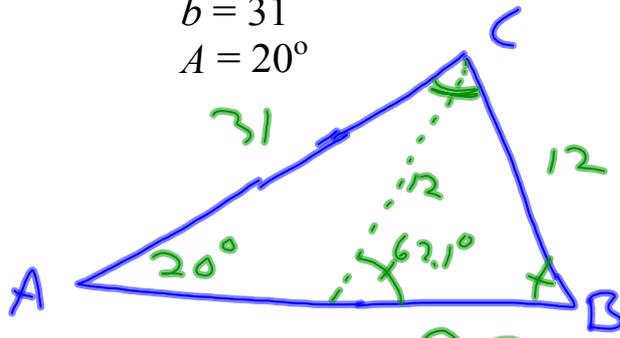
No Solution

Ex 3 Solve triangle ABC

$$a = 12$$

$$b = 31$$

$$A = 20^\circ$$



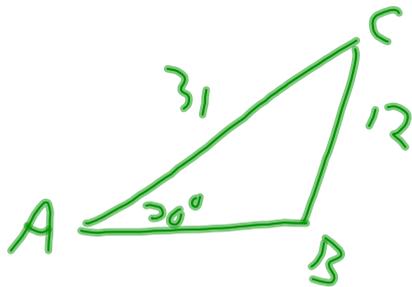
$$\frac{\sin 20^\circ}{12} = \frac{\sin B}{31}$$

$$B \approx 62.1^\circ$$

$$C \approx 97.9^\circ$$

$$\frac{\sin 20^\circ}{12} = \frac{\sin 97.9^\circ}{c}$$

$$c \approx 34.8$$



$$B \approx 117.9^\circ$$

$$C \approx 42.1^\circ$$

$$c \approx 23.5$$

$$\frac{\sin 20^\circ}{12} = \frac{\sin 42.1^\circ}{c}$$

Summary

★ A.S.S.

Given Angle is acute

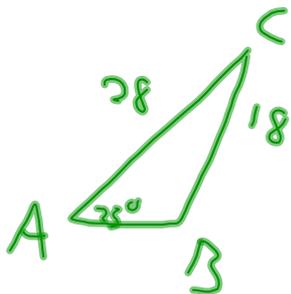
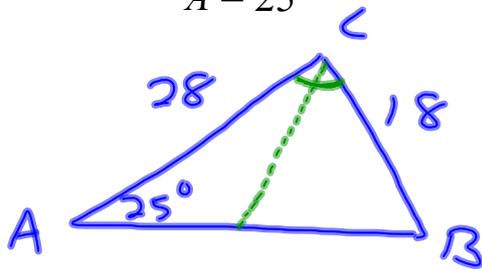
opp. side is less than adjacent side

Ex 4 Solve triangle ABC

$$a = 18$$

$$b = 28$$

$$A = 25^\circ$$



$$B \approx 41.5^\circ$$

$$C \approx 113.9^\circ$$

$$c \approx 38.9$$

$$B \approx 138.9^\circ$$

$$C \approx 16.1^\circ$$

$$c \approx 11.8$$

Homework
p.414 #8-18

2 w/ 2 solution

3 w/ no solutions