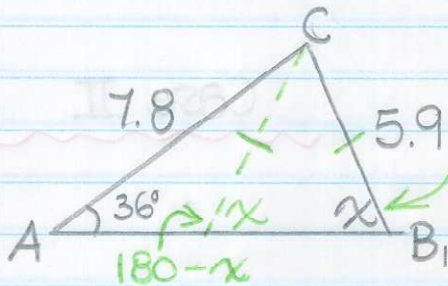


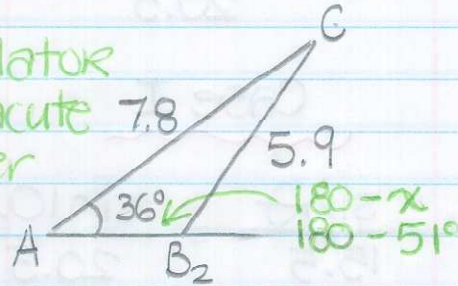
October 28th, 2008

4.4 Sine Law Ambiguous Case

In $\triangle ABC$ $b = 7.8\text{m}$ $a = 5.9\text{m}$ $\angle A = 36^\circ$
Find c , 1 dec. place



calculator gives acute answer



Case I

$$\frac{\sin B_1}{7.8} = \frac{\sin 36}{5.9}$$

$$\angle B_1 = 51^\circ$$

$$\angle C = 180 - 36 - 51 = 93^\circ$$

$$\frac{c}{\sin 93} = \frac{5.9}{\sin 36}$$

$$c = 10.0\text{m}$$

Case II

$$\angle B_2 = 180 - 51 = 129^\circ$$

$$\angle C = 180 - 36 - 129 = 15^\circ$$

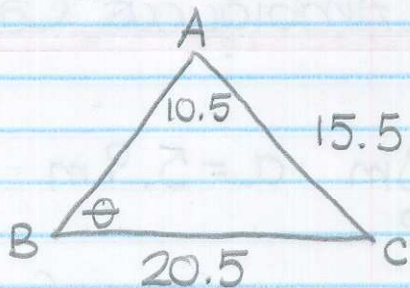
$$\frac{c}{\sin 15} = \frac{5.9}{\sin 36}$$

$$c = 2.6\text{m}$$

check $129 + 36 < 180$

Ambiguous Case of the sine law occurs when given 2 sides & 1 uncontained angle (NOT 2 angles & 1 side!)

Ex 1 Determine θ



* Check Ambiguous

Case I

$$\frac{\sin \theta}{15.5} = \frac{\sin 10.5}{20.5}$$

$$\sin \theta = \frac{15.5 \sin 10.5}{20.5}$$

$$\theta = 8^\circ$$

Case II

~~SAME~~

$$\theta_2 = 180 - 8 = 172^\circ$$

~~Check $172 + 10.5 < 180$~~

} may do in head