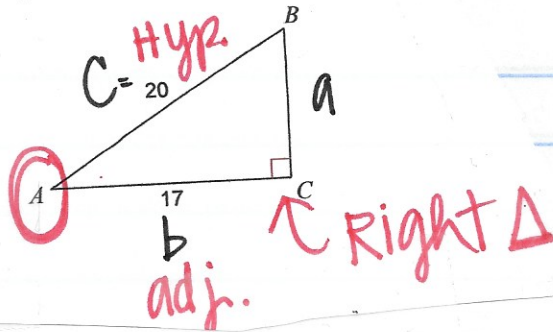


1)



side BC

Pythag. Theorem:

$$a^2 + b^2 = c^2$$

$$a^2 + 17^2 = 20^2$$

$$a^2 + 289 = 400$$

$$a^2 = 111$$

$$a = \sqrt{111} \approx 10.54$$

angle A

know: adj & hyp.

$\frac{CA}{CH}$

$$\cos A = \frac{17}{20}$$

$$m\angle A = \cos^{-1}\left(\frac{17}{20}\right)$$

$$m\angle A \approx 31.8^\circ$$

angle B

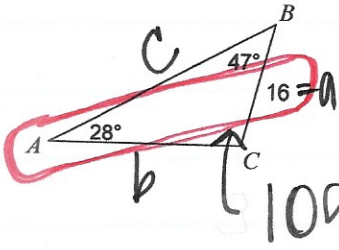
$$m\angle B = 180^\circ - 90^\circ - 31.8^\circ = 58.2^\circ$$

$$BC = 10.54$$

$$m\angle A = 31.8^\circ$$

$$m\angle B = 58.2^\circ$$

2)



AAS  
Buddy System  
↓  
Law of Sines

\* subtract to find m∠C

$$m\angle C = 105^\circ$$

$$\frac{\sin 28^\circ}{16} = \frac{\sin 47^\circ}{b}$$

$$\frac{b \sin 28^\circ}{\cancel{\sin 28^\circ}} = \frac{16 \sin 47^\circ}{\sin 28^\circ}$$

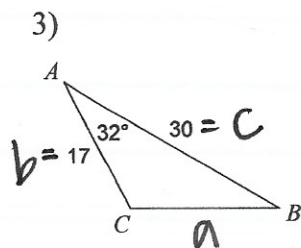
$$b \approx 24.93$$

$$\frac{\sin 28^\circ}{16} = \frac{\sin 105^\circ}{c}$$

$$\frac{c \sin 28^\circ}{\cancel{\sin 28^\circ}} = \frac{16 \sin 105^\circ}{\sin 28^\circ}$$

$$c \approx 32.92$$

$m\angle C = 105^\circ$
$AC \approx 24.93$
$AB \approx 32.92$



SAS  
NO Buddy  
↓  
LAW OF  
COSINES

side BC

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$a^2 = 17^2 + 30^2 - 2(17)(30) \cos 32^\circ$$

$$\sqrt{a^2} \approx \sqrt{323.9909}$$

$$a \approx 18$$

angle B

$$\frac{\sin 32^\circ}{17} = \frac{\sin B}{18}$$

$$\cancel{18} \cdot \sin B = \cancel{17} \cdot \sin 32^\circ$$

$$m\angle B = \sin^{-1} \left( \frac{17 \cdot \sin 32^\circ}{18} \right) \approx 30.0^\circ$$

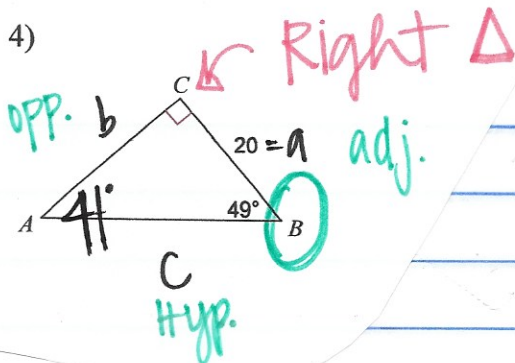
angle C

$$180^\circ - 32^\circ - 30^\circ = 118^\circ$$

$$BC = 18$$

$$m\angle B = 30^\circ$$

$$m\angle C = 118^\circ$$



$$m\angle A = 180^\circ - 49^\circ - 90^\circ = 41^\circ$$

Side AC ←  
 know: adj. AC is the opp.

$$\text{TOA} \quad \tan 49^\circ = \frac{20}{b}$$

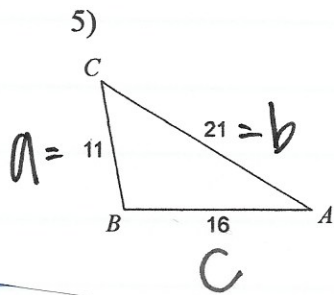
$$b = \frac{20}{\tan 49^\circ} \approx 17.39$$

Side AB ←  
 know: adj = 20 AB is the hyp.

$$\text{CAH} \quad \cos 49^\circ = \frac{20}{c}$$

$$c = \frac{20}{\cos 49^\circ} \approx 30.49$$

$m\angle A = 41^\circ$ $AC = 17.39$ $AB = 30.49$
--



SSS  
LAW OF  
COSINES

$$\cos A = \frac{a^2 - b^2 - c^2}{-2bc}$$

$$\cos A = \frac{11^2 - 21^2 - 16^2}{-2(21)(16)}$$

$$\cos A = \frac{-576}{-672}$$

$$m\angle A = \cos^{-1}\left(\frac{-576}{-672}\right) \approx 31^\circ$$

$$\cos B = \frac{b^2 - a^2 - c^2}{-2ac}$$

$$\cos B = \frac{21^2 - 11^2 - 16^2}{-2(11)(16)}$$

$$\cos B = \frac{64}{-352}$$

$$m\angle B = \cos^{-1}\left(\frac{64}{-352}\right) \approx 100.5^\circ$$

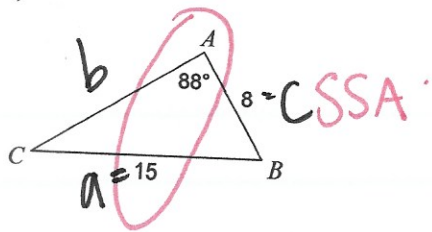
$$m\angle C = 180^\circ - 31^\circ - 100.5^\circ = 48.5^\circ$$

$$m\angle A = 31^\circ$$

$$m\angle B = 100.5^\circ$$

$$m\angle C = 48.5^\circ$$

6)



Buddy System

$$\textcircled{1} \frac{\sin 88^\circ}{15} = \frac{\sin C}{8}$$

$$\cancel{15} \cdot \sin C = \cancel{8} \cdot \sin 88^\circ$$

$$m\angle C = \sin^{-1} \left( \frac{8 \cdot \sin 88^\circ}{15} \right) \approx 32.2^\circ$$

$$\textcircled{2} m\angle B = 180^\circ - \underset{\substack{\uparrow \\ m\angle A}}{88^\circ} - \underset{\substack{\uparrow \\ m\angle C}}{32.2^\circ} = 59.8^\circ$$

$$\textcircled{3} \frac{\sin 88^\circ}{15} = \frac{\sin 59.8^\circ}{b}$$

$$\cancel{b} \cdot \sin 88^\circ = \cancel{15} \cdot \sin 59.8^\circ$$

$$b \approx 12.97$$

$$m\angle C = 32.2^\circ$$

$$m\angle B = 59.8^\circ$$

$$AC = 12.97$$