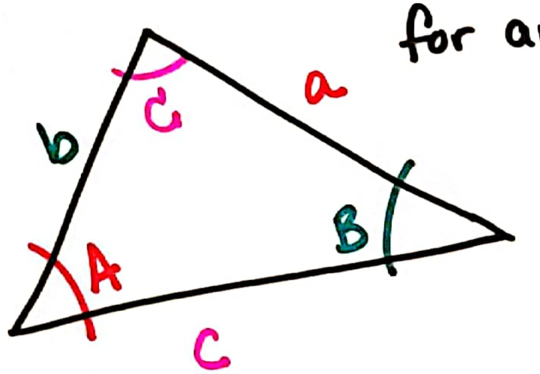
Law of Sines:



for any triangle:

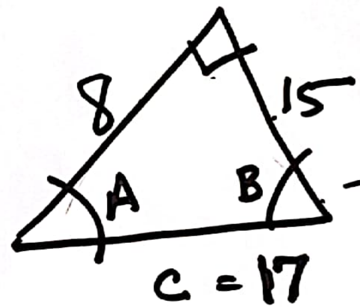
$$\boxed{\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}}$$

① Pyth. Thm to get c:

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

$c^2 = 8^2 + 15^2$

$\boxed{c = 17}$



Sum ∡'s:

③ $180°$
$- 90°$
$- 62°$

$\boxed{\angle B = 28°}$

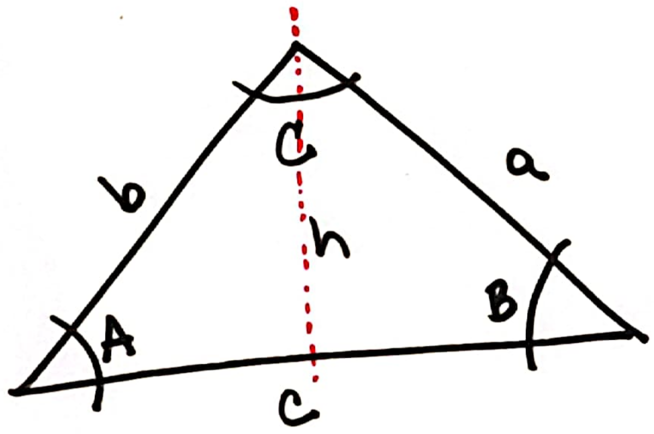
② Law of Sines to get ∡A:

$$\frac{\sin A}{a} = \frac{\sin B}{b} \Rightarrow \frac{\sin A}{15} = \frac{\cancel{\sin 90°} \to 1}{17}$$

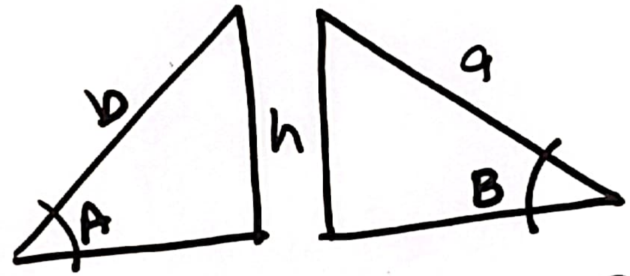
$$\cancel{15} \cdot \frac{\sin A}{\cancel{15}} = \frac{1}{17} \cdot 15 \Rightarrow \sin A = \frac{15}{17} \to \angle A = \sin^{-1}\left(\frac{15}{17}\right)$$

$\boxed{\angle A = 62°}$

Law of Sines: for any triangle



$$\sin = \frac{opp}{hyp}$$

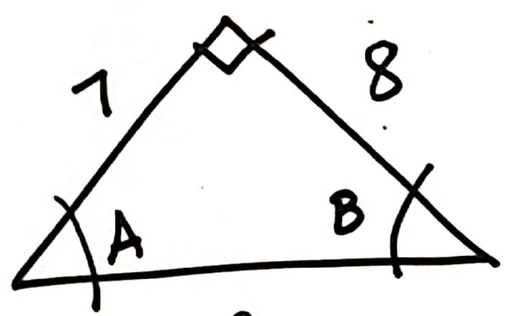


$$\sin A = \frac{h}{b} \qquad \sin B = \frac{h}{a}$$

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

$$\boxed{\frac{\sin A}{a} = \frac{\sin B}{b}} \Leftarrow \frac{\cancel{b} \sin A}{a \cdot \cancel{b}} = \frac{\cancel{a} \sin B}{\cancel{a} \cdot b}$$

Law of Sines:



1. Get c:

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

$c^2 = 7^2 + 8^2$

$\boxed{c = 10.6}$

2. Law of Sines to get $\measuredangle A$:

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

$$\frac{\sin A}{8} = \frac{\cancel{\sin 90^\circ}\ 1}{10.6}$$

$$\sin A = \frac{8}{10.6} \Rightarrow \measuredangle A = \sin^{-1}\left(\frac{8}{10.6}\right)$$

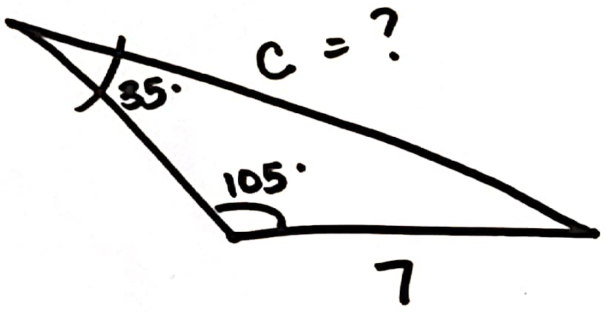
$$\boxed{\measuredangle A = 49^\circ}$$

3. Sum $\measuredangle$'s $= 180^\circ$

180°
-90°
-49°

$\boxed{41^\circ \leftarrow \measuredangle B}$

Law of Sines:

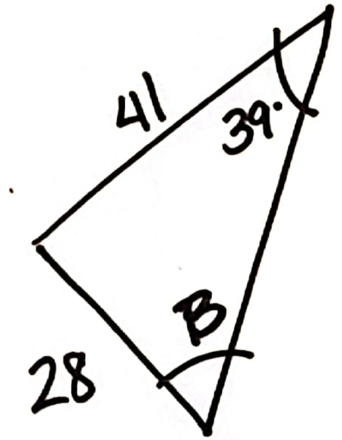


Law of Sines to get c:

$$c \cdot \frac{\sin 35^\circ}{7} = \frac{\sin 105^\circ}{\cancel{c}} \cdot \cancel{c}$$

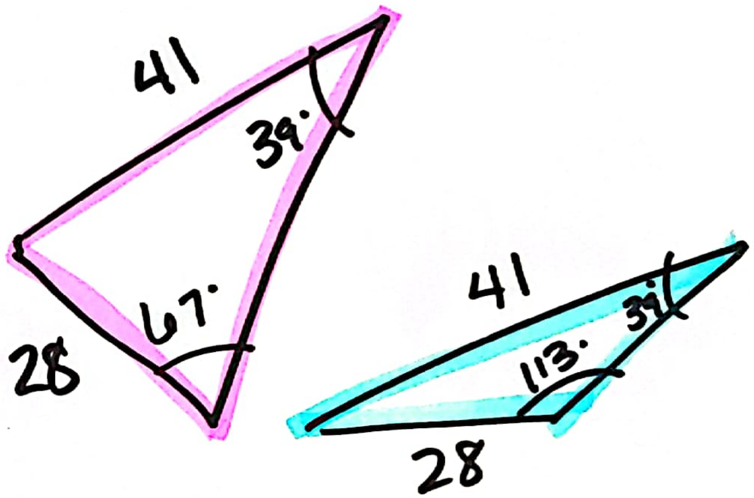
$$c = \underbrace{\sin 105^\circ}_{0.9659} \left(\frac{7}{\sin 35^\circ}\right)$$

$$c = \frac{6.76}{\sin 35^\circ} = \boxed{11.8}$$



Law of Sines:

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



$$41 \cdot \frac{\sin 39^\circ}{28} = \frac{\sin B}{41} \cdot 41$$

$$\sin B = \frac{41}{28}(\sin 39^\circ) = 0.9215$$

$$\measuredangle B = \sin^{-1}(0.9215) = \boxed{67^\circ}$$

or use:

$$\left[\begin{array}{l}\sin 112.85 = 0.9215 \\ \sin 67.1464 = 0.9215\end{array}\right]$$

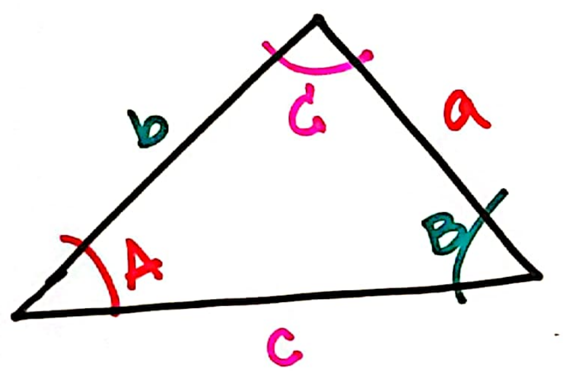
$$\left[\begin{array}{l}\sin 67^\circ = 0.9205 \\ \sin 113^\circ = 0.9205\end{array}\right.$$

But... there are two possible solutions!!

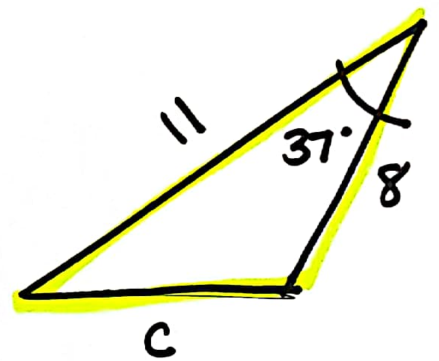
Note rounding error!
sin67 = .9205
sin 67.1464 = .921

*IMPORTANT Thing here is sometimes you have 2 answers!! *

Law of Cosines: for any triangle



$$\boxed{c^2 = a^2 + b^2 - 2ab\cos C}$$



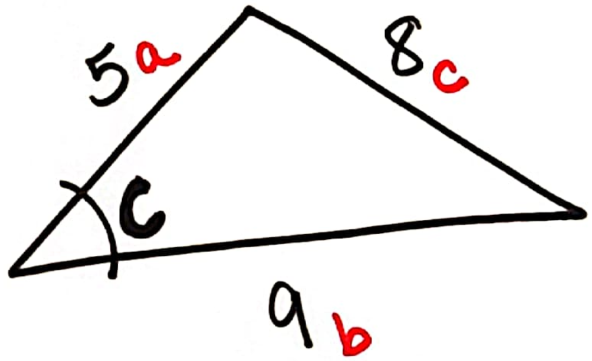
$$c^2 = a^2 + b^2 - 2ab\cos C$$

$$c^2 = 11^2 + 8^2 - 2(11)(8)\cos(37°)$$

$$c^2 = 121 + 64 - 140.6 = 44.44...$$

$$\boxed{c = 6.7}$$

Law of Cosines:



$$\boxed{c^2 = a^2 + b^2 - 2ab\cos C}$$

$$-a^2 - b^2 \qquad -a^2 \quad -b^2$$

$$\frac{c^2 - a^2 - b^2}{-2ab} = \frac{-\cancel{2ab}\cos C}{-\cancel{2ab}}$$

$$\cos C = \left[\frac{c^2 - a^2 - b^2}{-2ab}\right] = \left[\frac{64 - 25 - 81}{-2(5)(9)}\right]$$

$$\cos C = \frac{-42}{-90} = +\frac{42}{90}$$

$$\measuredangle C = \cos^{-1}\left(\frac{42}{90}\right) = \boxed{62.2^\circ}$$