

Law of Sine (LoS)

Law of Sine:

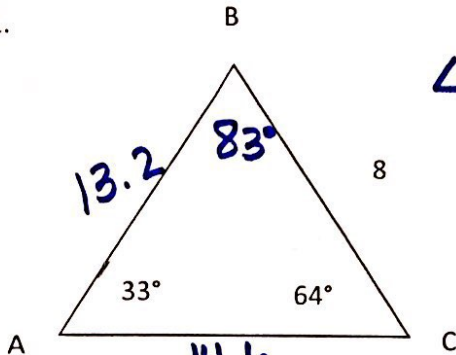
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Use when....

1. 2 angles & any side
2. 2 sides & angle opposite.

Ex: Solve the triangle.

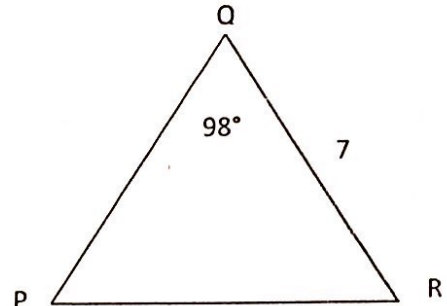
1.



$$\begin{aligned} \angle B &= 180 - 33 - 64 \\ \angle B &= 83^\circ \end{aligned}$$

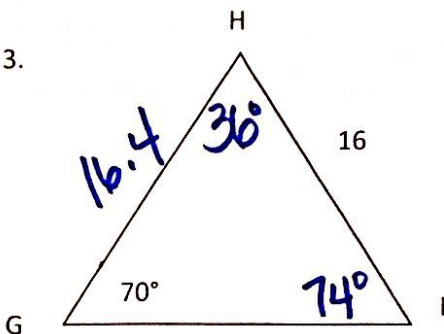
$$\begin{aligned} \frac{\sin 33}{8} &= \frac{\sin 64}{c} \\ c \sin 33 &= 8 \sin 64 \\ \frac{c \sin 33}{\sin 33} &= \frac{8 \sin 64}{\sin 33} \\ \boxed{c = 13.2} \end{aligned}$$

2.



$$\begin{aligned} \frac{\sin 83}{b} &= \frac{\sin 33}{8} \\ 8 \sin 83 &= b \sin 33 \\ \frac{8 \sin 83}{\sin 33} &= \frac{b \sin 33}{\sin 33} \\ \boxed{14.6 = b} \end{aligned}$$

3.



$$\angle I = 180 - 70 - 36 = 74^\circ$$

$$\begin{aligned} \frac{\sin 70}{16} &= \frac{\sin H}{10} \\ 10 \sin 70 &= 16 \sin H \\ \frac{10 \sin 70}{16} &= \frac{16 \sin H}{16} \\ 0.5873 &= \sin H \\ 36^\circ &= H \end{aligned}$$

$$\begin{aligned} \frac{\sin 74}{i} &= \frac{\sin 70}{16} \\ 16 \sin 74 &= i \sin 70 \\ \frac{16 \sin 74}{\sin 70} &= \frac{i \sin 70}{\sin 70} \\ \boxed{16.4 = i} \end{aligned}$$