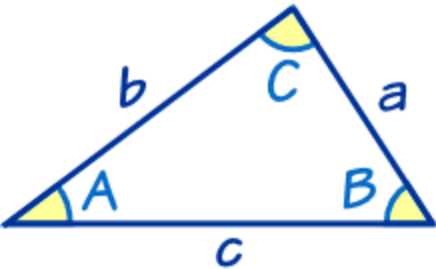


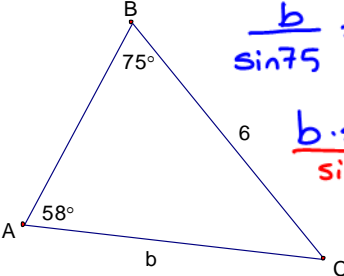
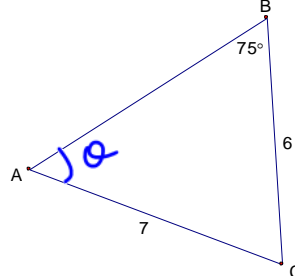
SINE LAW

The sine law is very useful for solving triangles:

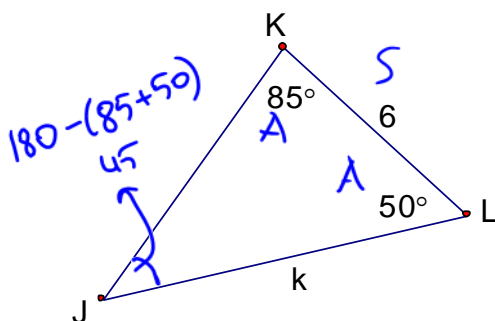
<p>Solving for a Side</p> $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	<p>Solving for an Angle</p> $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
<p>It works for any triangle:</p> <p>a, b, and c are sides. A, B, and C are angle.</p> 	

When Do We Use It?

The Sine Law is used to solve any triangle when given:

<p>Case 1) AAS ANGLE - ANGLE - SIDE</p>	<p>Case 2) SSA SIDE - SIDE - OPPOSITE ANGLE OF ONE OF THESE SIDES</p>
 $\frac{b}{\sin 75} = \frac{6}{\sin 58}$ $\frac{b \cdot \sin 58}{\sin 58} = \frac{6 \cdot \sin 75}{\sin 58}$ $b = \frac{6 \cdot \sin 75}{\sin 58}$ <p>b = 6.8</p>	 $\frac{\sin \theta}{6} = \frac{\sin 75}{7}$ $7 \cdot \sin \theta = \frac{6 \cdot \sin 75}{7}$ $\sin \theta = \frac{6 \cdot \sin 75}{7}$ $\sin \theta = 0.8279$ $\sin^{-1}(0.8279) = \theta$ <p>theta = 56 degrees</p>

Ex1: Solve for k.

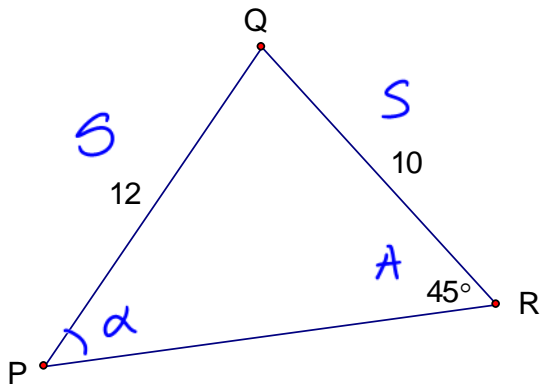


$$\frac{k}{\sin 85} = \frac{6}{\sin 45} \quad \text{Cross multiply}$$

$$\frac{k \cdot \sin 45}{\sin 45} = \frac{6 \cdot \sin 85}{\sin 45}$$

k = 8.7

Ex2. Find the value of $\angle P$.



$$\frac{\sin \alpha}{10} = \frac{\sin 45}{12} \quad \text{you can move 10 up where } \sin 45 \text{ is}$$

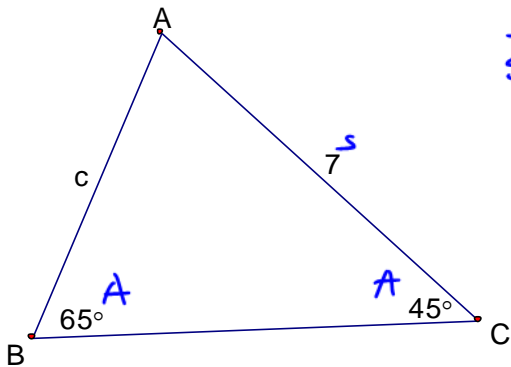
$$\sin \alpha = \frac{10 \cdot \sin 45}{12}$$

$$\sin \alpha = 0.5893$$

$$\sin^{-1}(0.5893) = \alpha$$

$$\boxed{\alpha = 36^\circ}$$

Ex3. Determine the value of side c. Round to 1 decimal place. (ANS: 5.5)

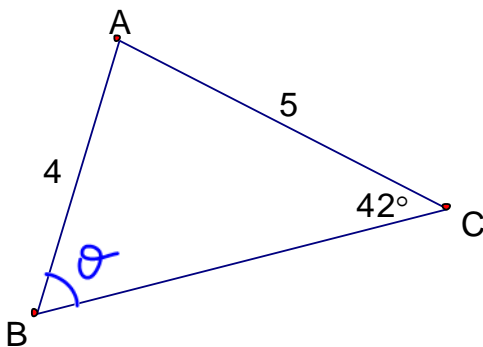


$$\frac{c}{\sin 45} = \frac{7}{\sin 65} \quad \text{move } \sin 45 \text{ up}$$

$$c = \frac{7 \cdot \sin 45}{\sin 65}$$

$$\boxed{c = 5.5}$$

Ex4. Determine the value of $\angle B$. Round to the nearest angle. (ANS: 57°)



$$\frac{\sin \theta}{5} = \frac{\sin 42}{4} \quad \text{move 5 up}$$

$$\sin \theta = \frac{5 \cdot \sin 42}{4}$$

$$\sin \theta = 0.8364$$

$$\sin^{-1}(0.8364) = \theta$$

$$\boxed{\theta = 57}$$