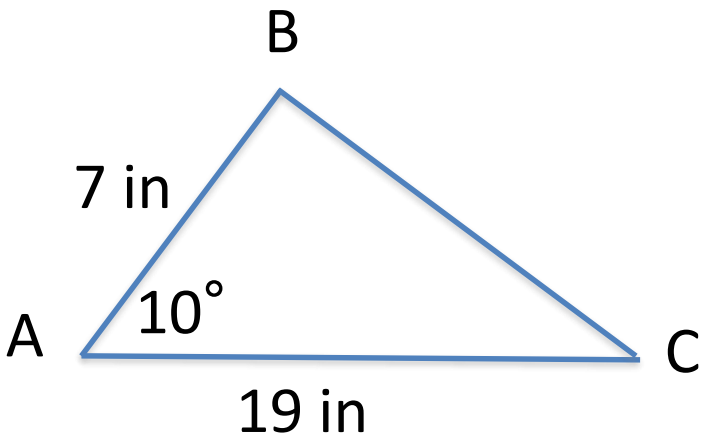
Sec. 6.1: Law of Sines

Area of any Δ: Need 2 sides and their included angle.

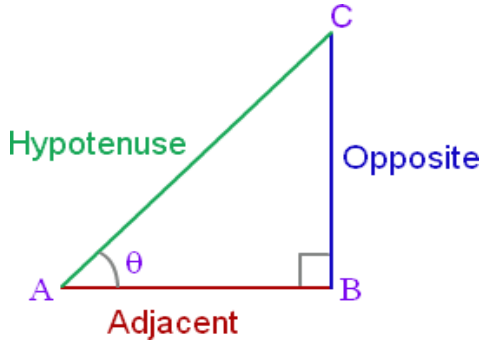
$$K_{\Delta} = \frac{1}{2}ab\sin C$$

Ex. 1) Find the area of Δ ABC. Round to the tenths.

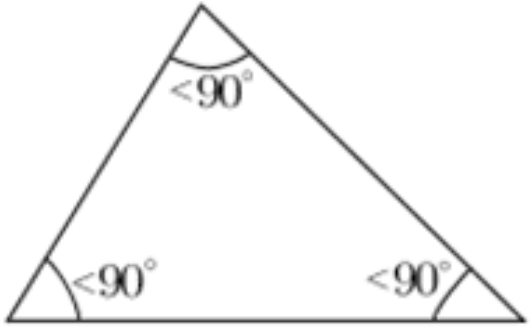


Ex.2) Adjacent sides of a parallelogram have lengths 12.5 cm and 8 cm. Their included angle is 40 degrees. Find its area. Round to the tenths.

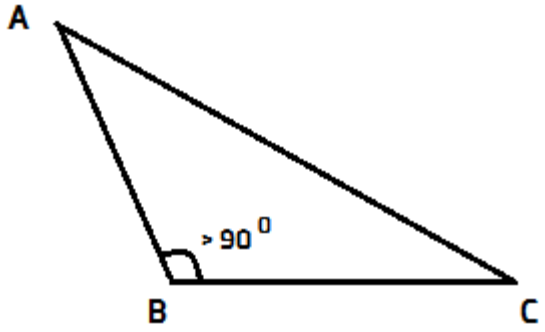
When solving triangles we already know we use SOH CAH TOA and the Pythagorean Theorem to solve right triangles.



An ***oblique triangle*** is a triangle that does not contain a right angle. An oblique triangle either has 3 acute angles or 2 acute angles and 1 obtuse.



Acute Angle Triangle



Obtuse angle triangle

We need other methods to solve oblique triangles….

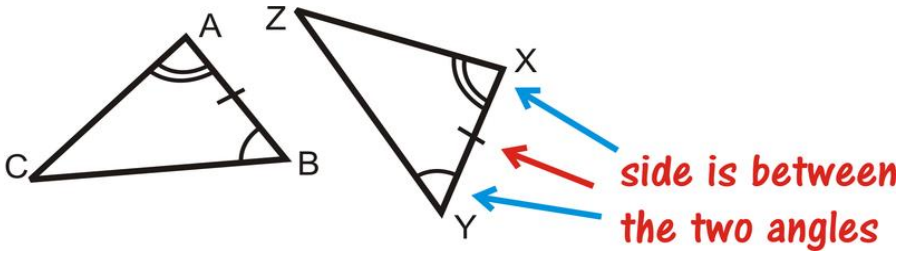
The Law of Sines:

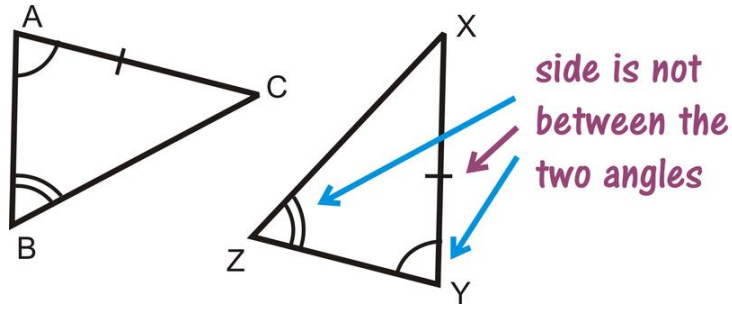
The ratio of the length of the side of any triangle to the sine of the angle opposite that side is the same for all three sides of the triangle.

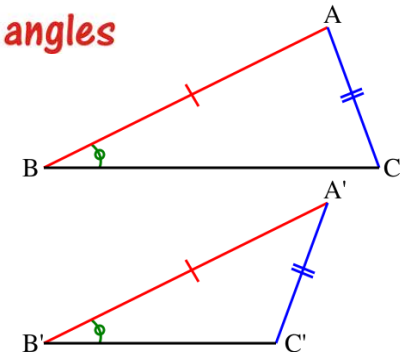
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

*This law can also be written in its reciprocal form.

This law is used when you have 2 angles and any side (AAS, ASA), or when you have 2 sides and an angle opposite one of them (SSA).







Ex.3) Solve Δ ABC, if <A = 20° , <B = 35° and BC = 12.
Round to the tenths.

Ex.4) Find the area of a *regular* (all sides and angles are equal) pentagon inscribed in a circle of radius 9 inches. Round to the hundredths.

*Draw the diagram today to understand, then you should not need to draw it in the future.

Ex.5) Solve Δ ABC. Round to the tenths.