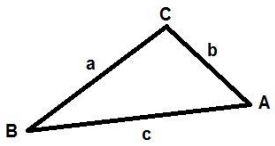
Area of a triangle

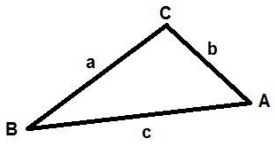
$$\text{Area of a triangle} = \frac{1}{2}ab\sin C$$



You can use this formula when you know the lengths of two sides and the angle between them.

Cosine Rule

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



For any triangle, if you know the lengths of two sides and the angle between them (the included angle) you can use the cosine rule to find the third side.

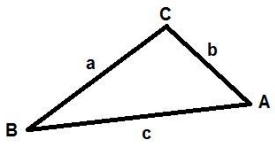
If you know all three sides you can rearrange the formula to find any angle.

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

Use the inverse cosine to find the angle.

Sine Rule

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



You can use the sine rule to solve problems about any triangle if you know the length of one side, the size of the opposite angle and at least one other piece of information.