

Solving Oblique Triangles

The Law of Sines & The Law of Cosines

“Solving a Triangle”

The Problem: given some side lengths and/or angles in a triangle, find its remaining sides and angles.

We've seen how to do this with *right* triangles, but now we need to do this with *oblique* triangles.

Four Cases

Remember, we've already learned that there are four cases when we know for certain that a triangle has a single, specific size and shape - that is, that any triangle with known measurements must be congruent.

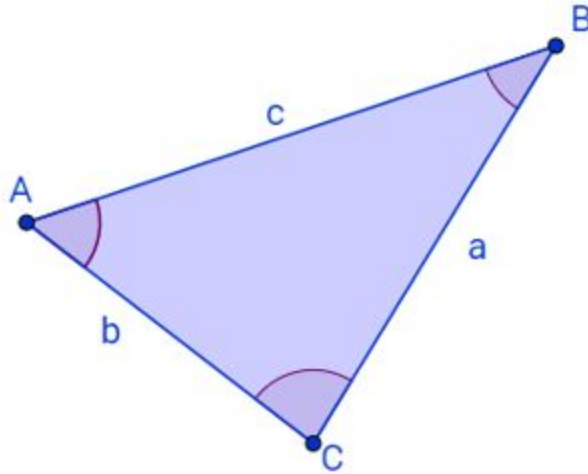
SSS

SAS

ASA

AAS

The Law of Sines (improving on the Triangle Angle-Side Th.)

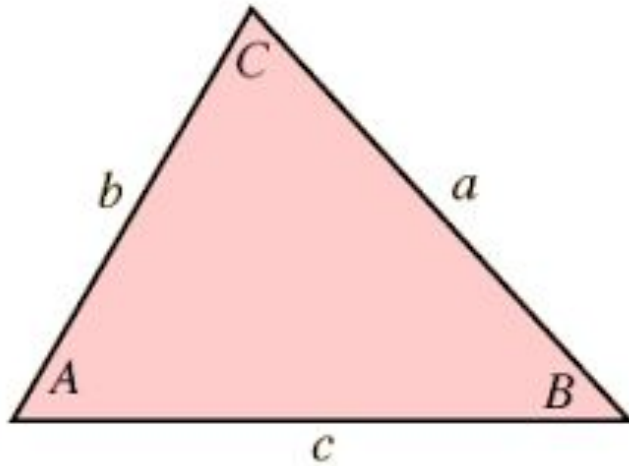


Law of sines

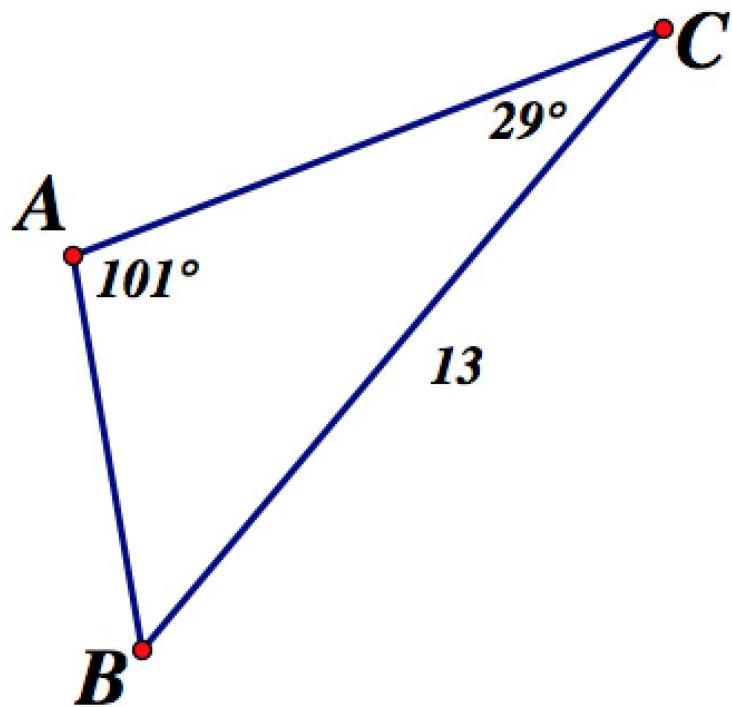
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

The Law of Cosines (improving on the Pythagorean Theorem)

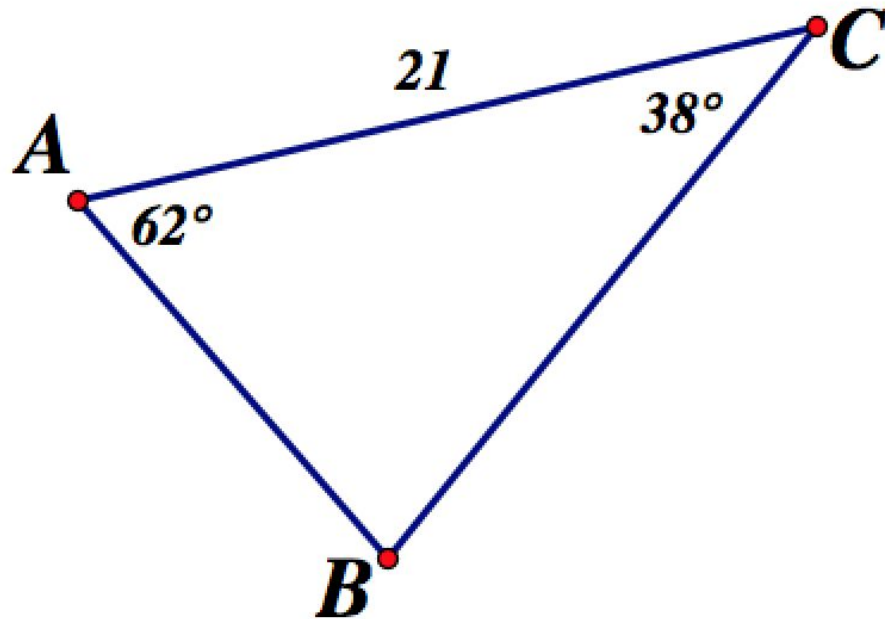
$$c^2 = a^2 + b^2 - 2ab \cos C$$



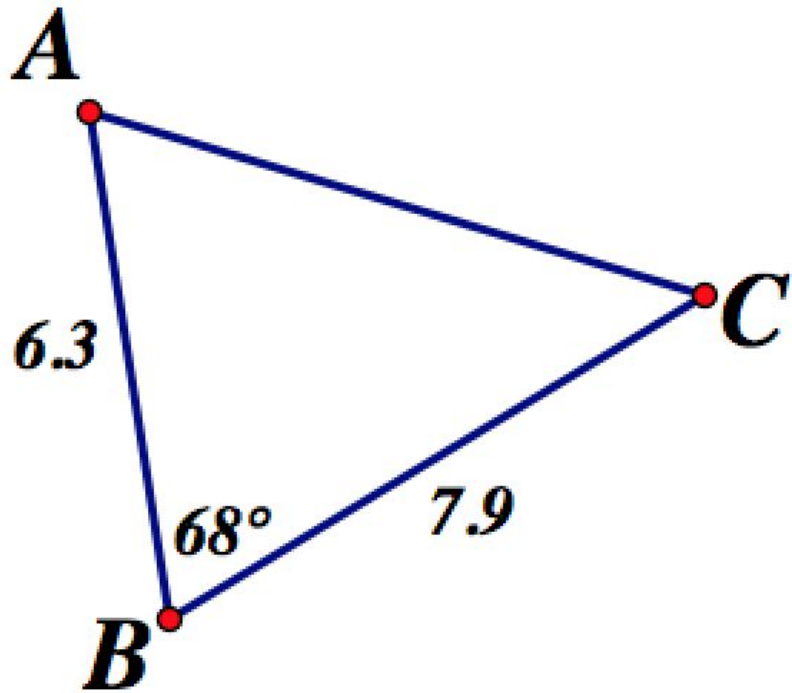
Solving AAS



Solving ASA



Solving SAS



Solving SSS

