

# Algebra-Trigonometry

## Law of Sines & Law of Cosines

### Law of Sines

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

Ambiguous Case

$$h = b \sin A$$

$a \geq b$	1 solution
$a < h$	no solutions
$h < a < b$	2 solutions

### Law of Cosines

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

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

### Area Formulas

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

Heron's Formula

$$s = \frac{a+b+c}{2}$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

