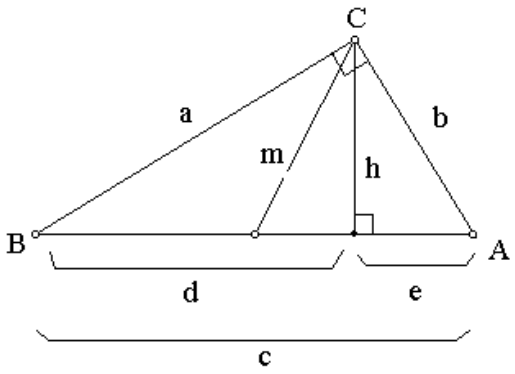
Triangles

Right Triangles



Pythagorean Theorem: $a^2 + b^2 = c^2$

Geometric relationships:

$h^2 = de$

$a^2 = dc$

Median to hypotenuse:

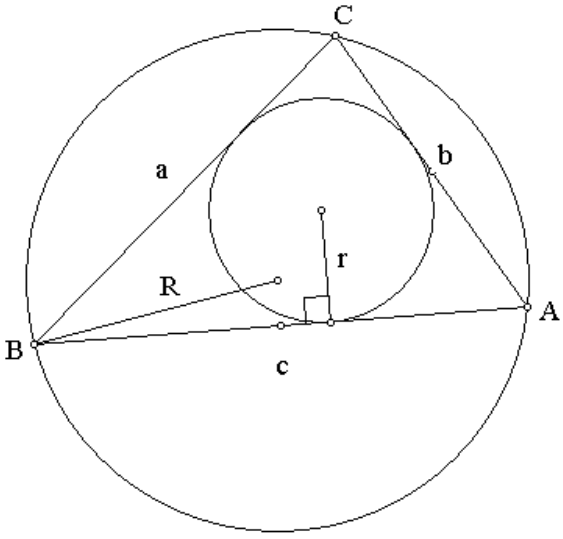
$m = \frac{c}{2}$

General Triangles

Law of Sines: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Law of Cosines: $c^2 = a^2 + b^2 - 2ab\cos C$

In the following formulas, the semiperimeter is $s = \frac{a+b+c}{2}$, K is the area of the triangle, r is the radius of the inscribed circle, and R is the radius of the circumscribed circle.



Area: $K = \frac{1}{2}ab\sin C = \frac{1}{2}h_c c$

Heron's Formula: $K = \sqrt{s(s-a)(s-b)(s-c)}$

Inscribed radius: $r = \frac{K}{s}$

Circumscribed radius: $R = \frac{abc}{4K}$, $R = \frac{c}{2\sin C}$