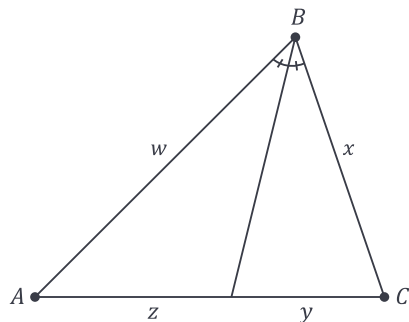


Area of a triangle

- ✓ Area = $\frac{\text{base} \times \text{height}}{2}$
- ✓ From the vertices: Area = $\frac{1}{2} |x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)|$, for vertices $(x_1, y_1), (x_2, y_2), (x_3, y_3)$
- ✓ Heron's formula: Area = $\sqrt{s(s-a)(s-b)(s-c)}$, where $s = \frac{a+b+c}{2}$ and a, b, c are the side lengths
- ✓ Pythagorean theorem: $a^2 + b^2 = c^2$

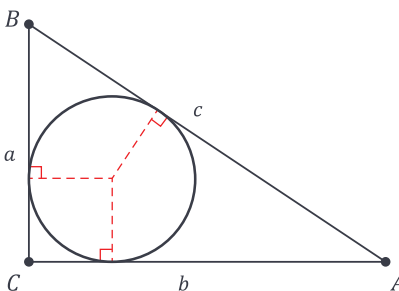
Angle bisector theorem

- ✓ $\frac{w}{z} = \frac{x}{y}$: the bisector of angle B cuts AC into z and y , in the ratio of the sides beside them, $w = AB$ and $x = BC$



Inradius of a right triangle

- ✓ $r = \frac{1}{2}(a + b - c)$, with legs a and b and hypotenuse c



Circle

- ✓ Area = πr^2
- ✓ Circumference = $2\pi r = \pi d$

