Pythagoras' theorem

$c^2 = a^2 + b^2$

Similarity

$$\frac{RP}{RM} = \frac{RQ}{RN} = \frac{PQ}{MN}$$

Surface area and volume

circumference of a circle: $2\pi r$
area of a circle: πr^2
volume of a sphere: $\frac{4}{3}\pi r^3$
surface area of a sphere: $4\pi r^2$
volume of a cone: $\frac{1}{3}\pi rh$
volume of a cylinder: $\pi r^2 h$
volume of a prism: area of base × height
volume of a pyramid: area of base × height

Scale factors

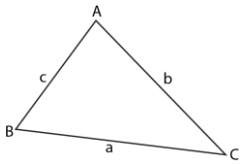
k^2 relationship between area
k^3 relationship between volume

Area of a Triangle

Right-angled triangles

area = $\frac{1}{2}bh$

Using the sine rule

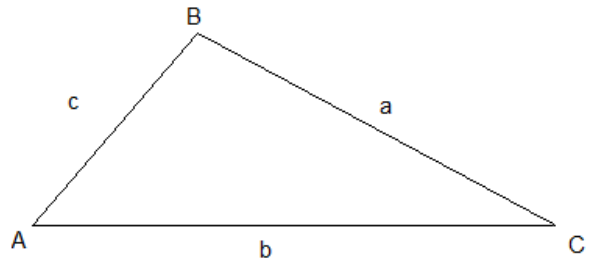


$$\text{area} = \frac{1}{2}bc\sin A$$

Heron's formula

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

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



The sine rule

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

The cosine rule

$$a^2 = b^2 + c^2 - 2bc\ cosA$$

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

Contour maps