

Level 2 Certificate
FURTHER MATHEMATICS

Formulae Sheet

Insert

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2}(a + b)h$$

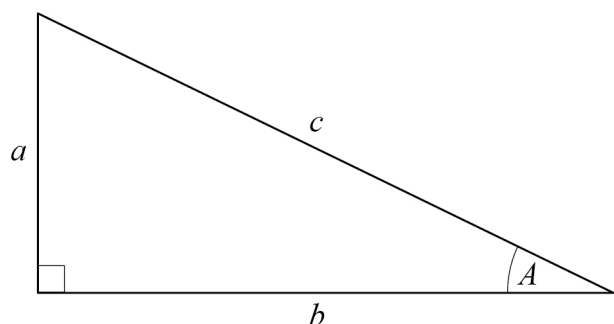
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

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

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

In any triangle ABC where a , b and c are the length of the sides:

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

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

$$\text{For any angle } \theta \quad \tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\text{and } \sin^2 \theta + \cos^2 \theta = 1$$

Coordinate Geometry

$$\text{Equation of a straight line passing through } (x_1, y_1) \text{ with gradient } m \quad y - y_1 = m(x - x_1)$$

$$\text{The general equation of a circle, centre } (a, b), \text{ radius } r \quad (x - a)^2 + (y - b)^2 = r^2$$