

CAMBRIDGE IGCSE • 0580

IGCSE Maths Formula Sheet

Every formula given in the exam, plus the ones you must learn by heart.

1 Given in the exam: Core and Extended

Printed on page 2 of every 0580 paper, so understand them, but you do not need to memorise them.

Area of a triangle	$A = \frac{1}{2}bh$
Area of a circle	$A = \pi r^2$
Circumference of a circle	$C = 2\pi r$
Curved surface area of a cylinder	$A = 2\pi rh$
Curved surface area of a cone (sloping edge l)	$A = \pi rl$
Surface area of a sphere	$A = 4\pi r^2$
Volume of a prism (cross-section A, length l)	$V = Al$
Volume of a pyramid (base area A)	$V = \frac{1}{3}Ah$
Volume of a cylinder	$V = \pi r^2h$
Volume of a cone	$V = \frac{1}{3}\pi r^2h$
Volume of a sphere	$V = \frac{4}{3}\pi r^3$

2 Given in the exam: Extended only

Added to the list on Papers 2 and 4.

Quadratic formula, for $ax^2 + bx + c = 0$ ($a \neq 0$)	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Sine rule	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
Cosine rule	$a^2 = b^2 + c^2 - 2bc \cos A$
Area of a triangle	$\text{Area} = \frac{1}{2}ab \sin C$

3 Not given: formulas to learn

The syllabus expects you to know these, so learn them by heart.

Pythagoras' theorem (c is the hypotenuse)	$a^2 + b^2 = c^2$
Trigonometry in right-angled triangles	$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$
Speed, distance and time	$\text{speed} = \frac{\text{distance}}{\text{time}}$
Gradient of a straight line	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Equation of a straight line	$y = mx + c$
Midpoint of a line segment Extended only	$(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$
Length of a line segment Extended only	$\sqrt{((x_2 - x_1)^2 + (y_2 - y_1)^2)}$
Arc length (angle θ)	$\frac{\theta}{360} \times 2\pi r$
Area of a sector (angle θ)	$\frac{\theta}{360} \times \pi r^2$
Simple interest	$I = \frac{PRT}{100}$
Compound interest (value after n years)	$A = P(1 + \frac{r}{100})^n$
Probability of an event not happening	$P(\text{not } A) = 1 - P(A)$

