

H

National Qualifications

2026

Mathematics

Paper 1

Thursday, 7 May

Formulae List

[Braille page 2] FORMULAE LIST

Circle

The equation

$$x^2 + y^2 + 2gx + 2fy + c$$

= 0 represents a circle

centre $(-g, -f)$ and radius

$$\sqrt{g^2 + f^2 - c}.$$

The equation

$$(x-a)^2 + (y-b)^2$$

= r^2 represents a circle

centre (a, b) and radius r .

Scalar product

$\mathbf{a} \cdot \mathbf{b} = |\mathbf{a}| |\mathbf{b}| \cos \theta$, where θ is the angle between $\mathbf{a}$ and $\mathbf{b}$
or

$$\mathbf{a} \cdot \mathbf{b} = a_1 b_1 + a_2 b_2 + a_3 b_3 \text{ where } \mathbf{a} = \begin{pmatrix} a_1 \\ a_2 \\ a_3 \end{pmatrix} \text{ and } \mathbf{b} = \begin{pmatrix} b_1 \\ b_2 \\ b_3 \end{pmatrix}.$$

[Braille page 3] Trigonometric formulae

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$\sin 2A = 2 \sin A \cos A$$

$$\cos 2A = \cos^2 A - \sin^2 A$$

$$= 2 \cos^2 A - 1$$

$$= 1 - 2 \sin^2 A$$

Table of standard derivatives

$$f(x) \dots\dots\dots f'(x)$$

$$\sin ax \dots\dots\dots a \cos ax$$

$$\cos ax \dots\dots\dots -a \sin ax$$

Table of standard integrals

$$f(x) \dots\dots\dots \int f(x) dx$$

$$\sin ax \dots\dots\dots -\frac{1}{a} \cos ax + c$$

$$\cos ax \dots\dots\dots \frac{1}{a} \sin ax + c$$