



Cambridge IGCSE™

 CANDIDATE
NAME


 CENTRE
NUMBER

--	--	--	--	--

 CANDIDATE
NUMBER

--	--	--	--

ADDITIONAL MATHEMATICS

0606/21

Paper 2

May/June 2026
2 hours

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You should use a scientific calculator where appropriate.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π , use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [].

 This document has **16** pages. Any blank pages are indicated.

List of formulas

Equation of a circle with centre (a, b) and radius r .

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

Curved surface area, A , of cone of radius r , sloping edge l .

$$A = \pi r l$$

Surface area, A , of sphere of radius r .

$$A = 4\pi r^2$$

Volume, V , of pyramid or cone, base area A , height h .

$$V = \frac{1}{3}Ah$$

Volume, V , of sphere of radius r .

$$V = \frac{4}{3}\pi r^3$$

Quadratic equation

For the equation $ax^2 + bx + c = 0$,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Binomial theorem

$$(a + b)^n = a^n + \binom{n}{1}a^{n-1}b + \binom{n}{2}a^{n-2}b^2 + \dots + \binom{n}{r}a^{n-r}b^r + \dots + b^n,$$

where n is a positive integer and $\binom{n}{r} = \frac{n!}{(n-r)!r!}$

Arithmetic series

$$u_n = a + (n-1)d$$

$$S_n = \frac{1}{2}n(a + l) = \frac{1}{2}n\{2a + (n-1)d\}$$

Geometric series

$$u_n = ar^{n-1}$$

$$S_n = \frac{a(1-r^n)}{1-r} \quad (r \neq 1)$$

$$S_\infty = \frac{a}{1-r} \quad (|r| < 1)$$

Identities

$$\sin^2 A + \cos^2 A = 1$$

$$\sec^2 A = 1 + \tan^2 A$$

$$\operatorname{cosec}^2 A = 1 + \cot^2 A$$

Formulas for $\triangle ABC$

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

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

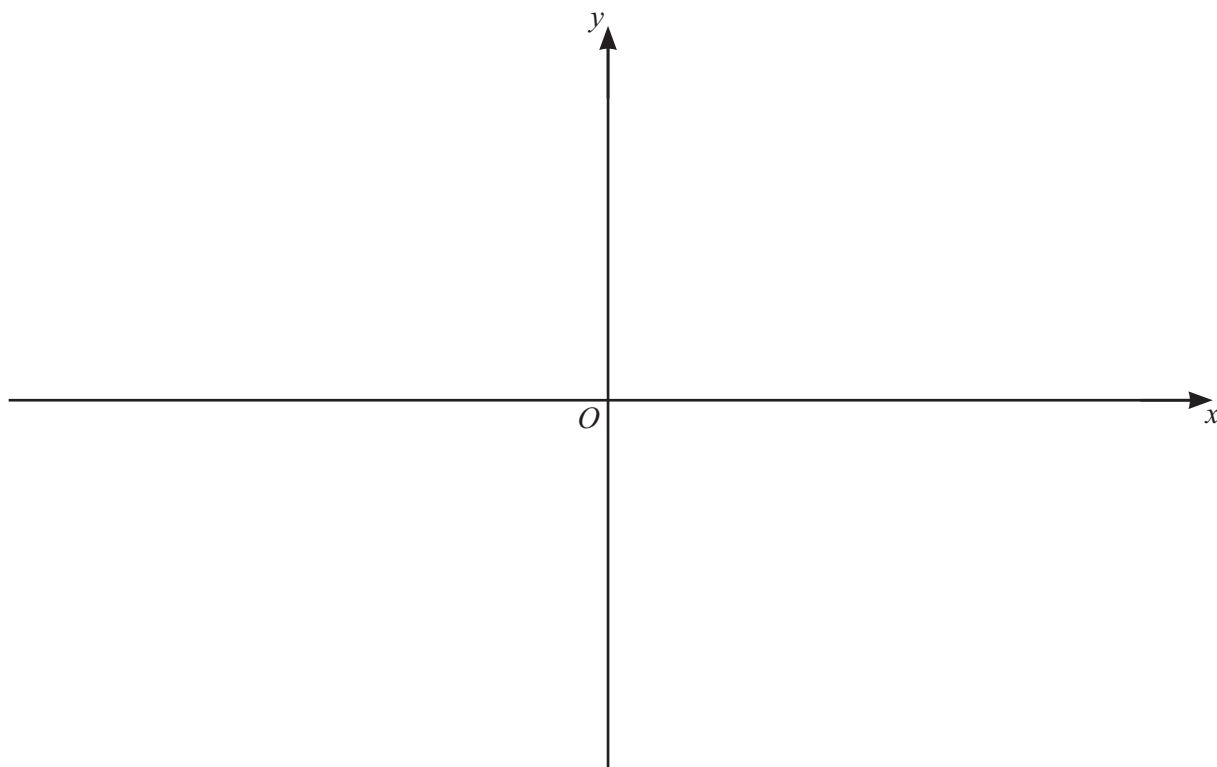
$$\Delta = \frac{1}{2}ab \sin C$$



- 1 (a) On the axes, sketch the graph of $y = \frac{1}{3}(2x-1)(x+3)(2x+5)$.

State the intercepts with the coordinate axes.

[3]



- (b) Solve the inequality $\frac{1}{3}(2x-1)(x+3)(2x+5) > 0$.

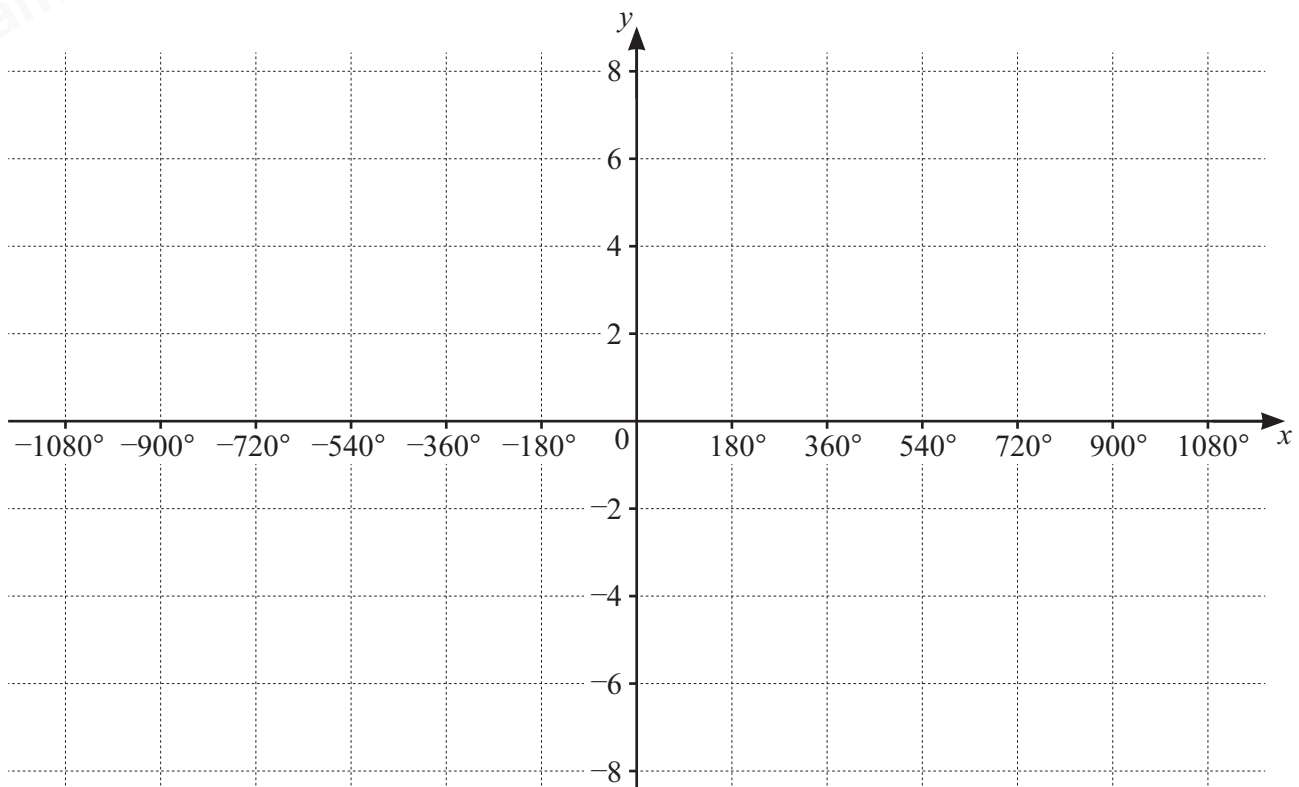
[2]

2 (a) Write down the amplitude of $4 \cos\left(\frac{x}{8}\right) + 2$. [1]

(b) Write down the period, in degrees, of $4 \cos\left(\frac{x}{8}\right) + 2$. [1]

(c) Solve the equation $4 \cos\left(\frac{x}{8}\right) + 2 = 0$ for $-1080^\circ \leq x \leq 1080^\circ$. [3]

(d) On the axes sketch the graph of $y = 4 \cos\left(\frac{x}{8}\right) + 2$ for $-1080^\circ \leq x \leq 1080^\circ$. [2]



- 3 An arithmetic progression has first term a and common difference d .

The 6th term is 1.5 times the 3rd term.

The sum of the first ten terms is 255.

- (a) Find the values of a and d .

[4]

- (b) Using your values of a and d , find the least number of terms for the sum of this arithmetic progression to be greater than 40 000.

[4]

- 4 It is given that x and y are variables.

When $\ln 3y$ is plotted against x^2 a straight line is obtained.

This straight line passes through the points (4.64, 12.24) and (6.84, 8.94).

- (a) Show that $y = ke^{ax^2}$ where k and a are exact constants. [6]

- (b) Find the value of y when $x = 3$. [1]

- (c) Find the values of x when $y = 10$. [2]





5 It is given that $y = \tan^3 5x$.

(a) Find $\frac{dy}{dx}$ in terms of $\tan 5x$.

[4]

(b) Hence solve the equation $\frac{dy}{dx} = 0$ for $0 \leq x < \frac{4\pi}{5}$.

[5]





6 A 5-digit number is to be formed from the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

No digit may be used more than once in any 5-digit number.

Find how many of these 5-digit numbers are greater than 40 000 and divisible by 5.

[3]

PapaCambridge

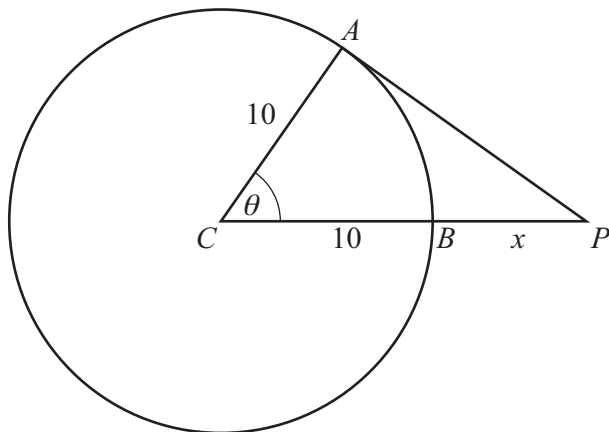


- 7 Find the term independent of x in the expansion of $(2 - 3x)^6 \left(1 + \frac{1}{4x}\right)^2$.

[6]

PapaCambridge

- 8 In this question lengths are in centimetres and angles are in radians.



The diagram shows a circle, centre C , radius 10.
The points A and B lie on the circumference of the circle.
The point P is such that CBP is a straight line.
The line BP has length x .
The line AP is a tangent to the circle at A .
Angle ACB is θ .
The perimeter of the triangle APC is 38.

- (a) Show that the value of θ is 0.885 radians correct to 3 decimal places.

[6]

(b) Find the length of the arc AB .

[1]

(c) Find the area of the sector ACB .

[1]

- 9 Solve the equation $5 - 2 \operatorname{cosec}(\theta - 0.5) = 0$ where θ is in radians and $-3.5 \leq \theta \leq 3.5$.

[5]

PapaCambridge



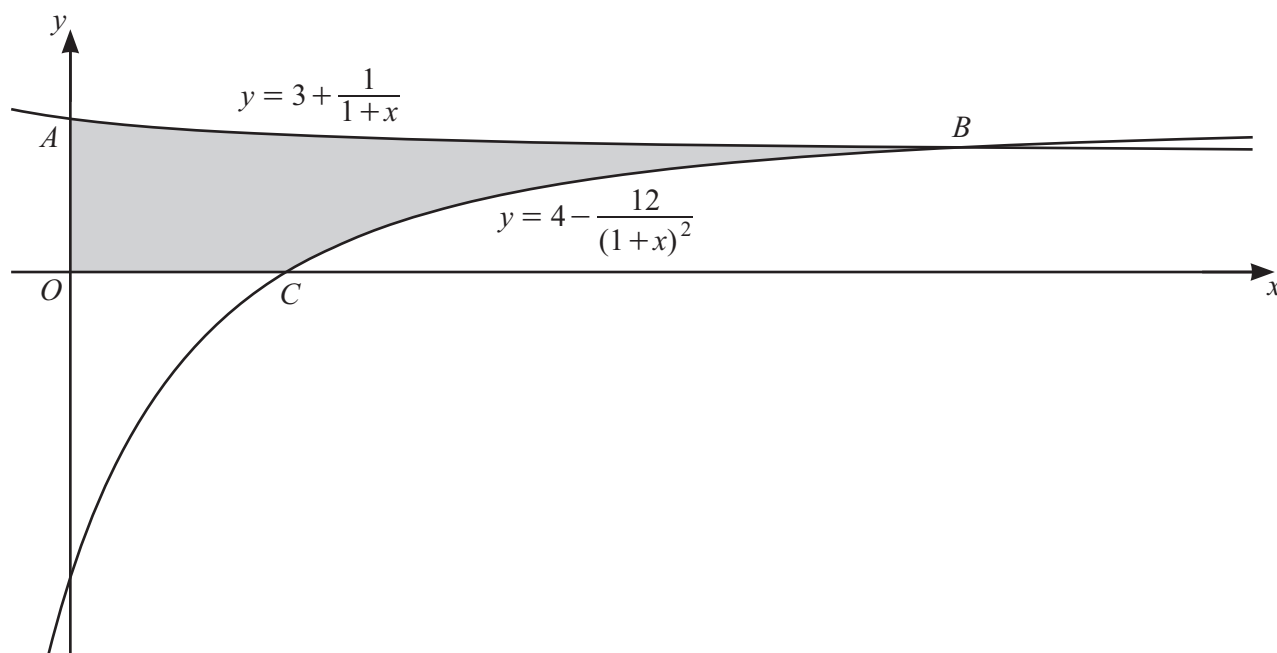
- 10 A curve has equation $y = x^2 \ln(3x^2 + 5)$.

The normal to the curve at the point where $x = -1$ meets the x -axis at the point P and the y -axis at the point Q .

Find the area of the triangle OPQ , where O is the origin.
Give your answer correct to 3 significant figures.

[10]

11



The diagram shows part of the curve $y = 3 + \frac{1}{1+x}$ and part of the curve $y = 4 - \frac{12}{(1+x)^2}$.

The curve $y = 3 + \frac{1}{1+x}$ meets the y -axis at the point A .

The curve $y = 4 - \frac{12}{(1+x)^2}$ meets the x -axis at the point C .

The curves intersect at the point B .

Find the area of the shaded region $OABC$.

Give your answer in exact form.

[10]





Continuation of working space for question 11.





PapaCambridge

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (Cambridge University Press & Assessment) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in our Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge International Education is the name of our awarding body and a part of Cambridge University Press & Assessment, which is a department of the University of Cambridge.

