FOR OFFICIAL USE

N5 National Qualifications 2026

Mark

X847/75/01

Mathematics
Paper 1 (Non-calculator)

FRIDAY, 8 MAY
9:00 AM – 10:00 AM

X8477501

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Number of seat

Date of birth
Day Month Year

Scottish candidate number

Total marks — 40

Attempt ALL questions.

You must NOT use a calculator.

To earn full marks you must show your working in your answers.

State the units for your answer where appropriate.

Write your answers clearly in the spaces provided in this booklet. Additional space for answers is provided at the end of this booklet. If you use this space you must clearly identify the question number you are attempting.

Use **blue** or **black** ink.

Do not remove any exam materials. You must leave this booklet on your desk; if you do not, you could lose all the marks for this paper.

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A/PB

FORMULAE LIST

The roots of $ax^2 + bx + c = 0$ are $x = \dfrac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Sine rule $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine rule $a^2 = b^2 + c^2 - 2bc\cos A$ or $\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$

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

Volume of a sphere $V = \frac{4}{3}\pi r^3$

Volume of a cone $V = \frac{1}{3}\pi r^2 h$

Volume of a pyramid $V = \frac{1}{3}Ah$

Standard deviation $s = \sqrt{\dfrac{\Sigma(x - \bar{x})^2}{n - 1}}$

or $s = \sqrt{\dfrac{\Sigma x^2 - \dfrac{(\Sigma x)^2}{n}}{n - 1}}$, where n is the sample size.

MARKS | DO NOT WRITE IN THIS MARGIN

Total marks — 40

Attempt ALL questions

1. Expand and simplify $(y+4)(y^2-3y+2)$. 3

2. An electric car shows that it has enough charge remaining in its battery to travel 180 miles.

   The battery has 60% of its charge remaining.

   Calculate the number of miles the car can travel when the battery is fully charged. 3

[Turn over

3. A restaurant recorded the waiting times to be seated from a sample of its customers.

The waiting times, in minutes, of ten customers were:

2 20 5 14 2 4 8 18 6 15

(a) Calculate the median and interquartile range of the waiting times. **3**

A café also recorded the waiting times to be seated from a sample of its customers.

The median waiting time at the café was 5 minutes and the interquartile range was 12 minutes.

(b) Make two valid comments comparing the waiting times at the restaurant and at the café. **2**

MARKS | DO NOT WRITE IN THIS MARGIN

4. Solve, algebraically, the inequation

$$x+8<3(x-2)+20.$$

3

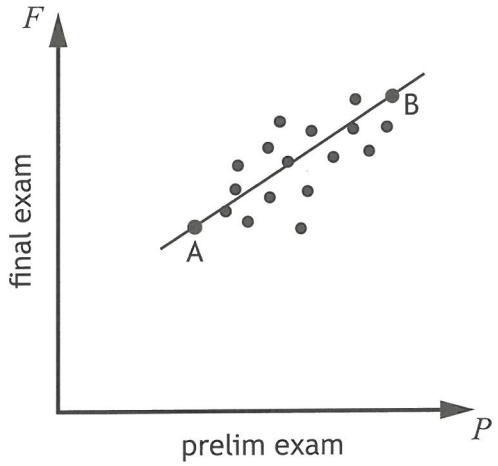
5. Sam walked $2\frac{3}{4}$ miles to a park and then walked a further $1\frac{2}{3}$ miles to a shop.
Calculate the total distance Sam walked.

2

[Turn over

6. A teacher records the marks scored by the pupils in her class for the prelim exam and the final exam.

The scattergraph shows the relationship between the marks scored in the prelim exam, P, and the final exam, F.



A line of best fit is drawn.

Point A represents a pupil who scored 30 in the prelim exam and 54 in the final exam.

Point B represents a pupil who scored 90 in the prelim exam and 94 in the final exam.

(a) Find the equation of the line of best fit in terms of F and P.

Give the equation in its simplest form. **3**

6. (continued)

A pupil scored 33 marks in the prelim exam.

(b) Use your equation from part (a) to estimate their mark in the final exam. 1

7. Find $|\mathbf{d}|$, the magnitude of vector $\mathbf{d} = \begin{pmatrix} 4 \\ -5 \\ 7 \end{pmatrix}$.

Express your answer as a surd in its simplest form. 3

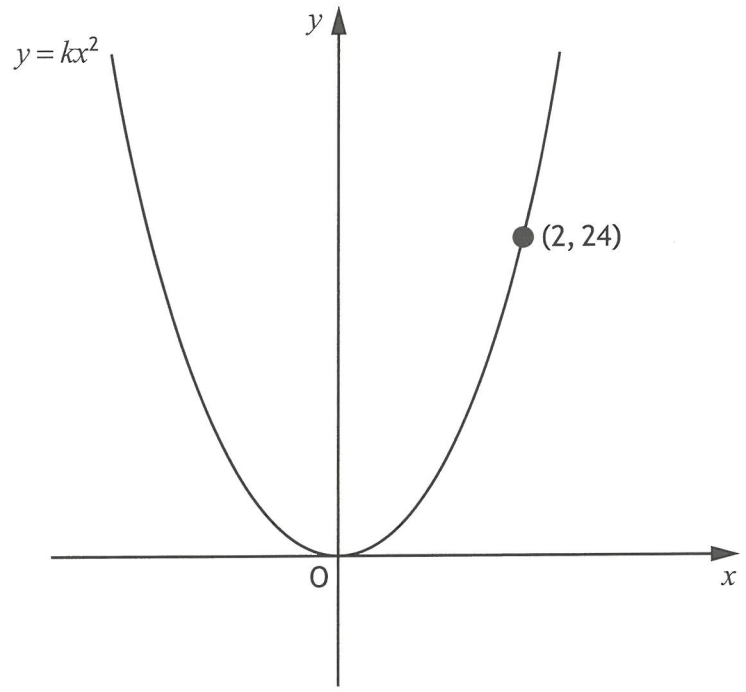
[Turn over

8. Change the subject of the following formula to T.

$$P = \sqrt{T - 3L}$$

2

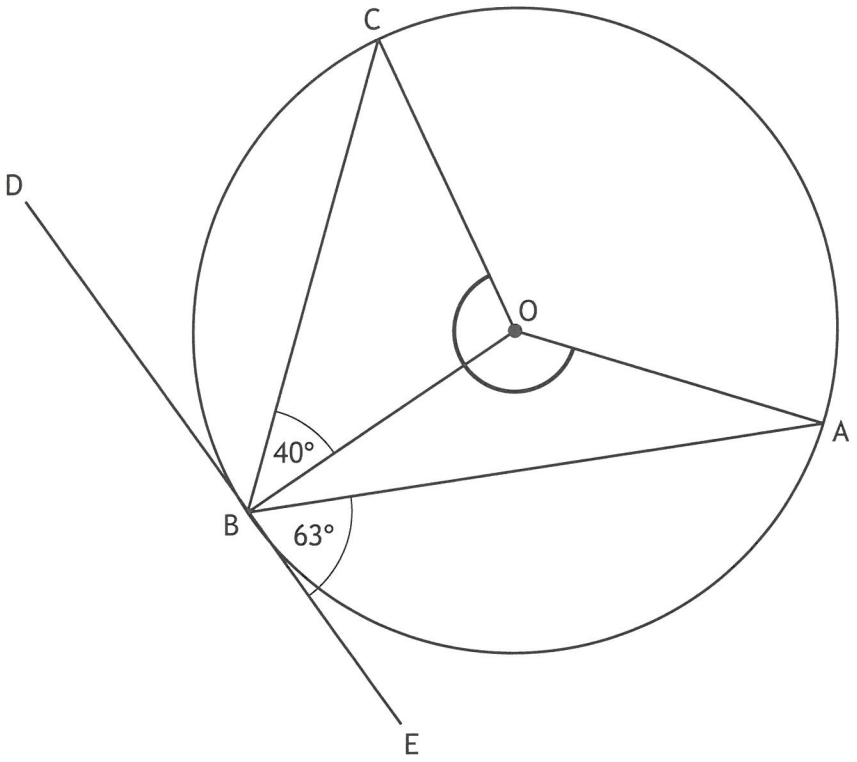
9. The diagram shows part of the graph of $y = kx^2$.



Find the value of k.

2

10. The diagram shows a circle with centre O.



- DE is a tangent to the circle at the point B.
- Angle OBC is 40°.
- Angle ABE is 63°.

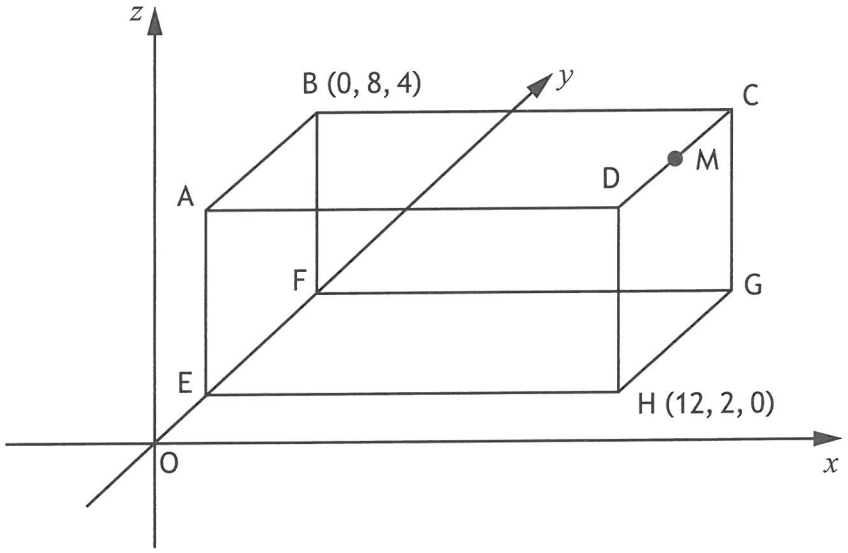
Calculate the size of the **reflex** angle AOC. 3

State your final answer below.

Reflex angle AOC =

[Turn over

11. The diagram shows a cuboid, ABCDEFGH, relative to the coordinate axes.



- B has coordinates (0, 8, 4).
- H has coordinates (12, 2, 0).
- EH is parallel to the x-axis.

(a) State the coordinates of G. **1**

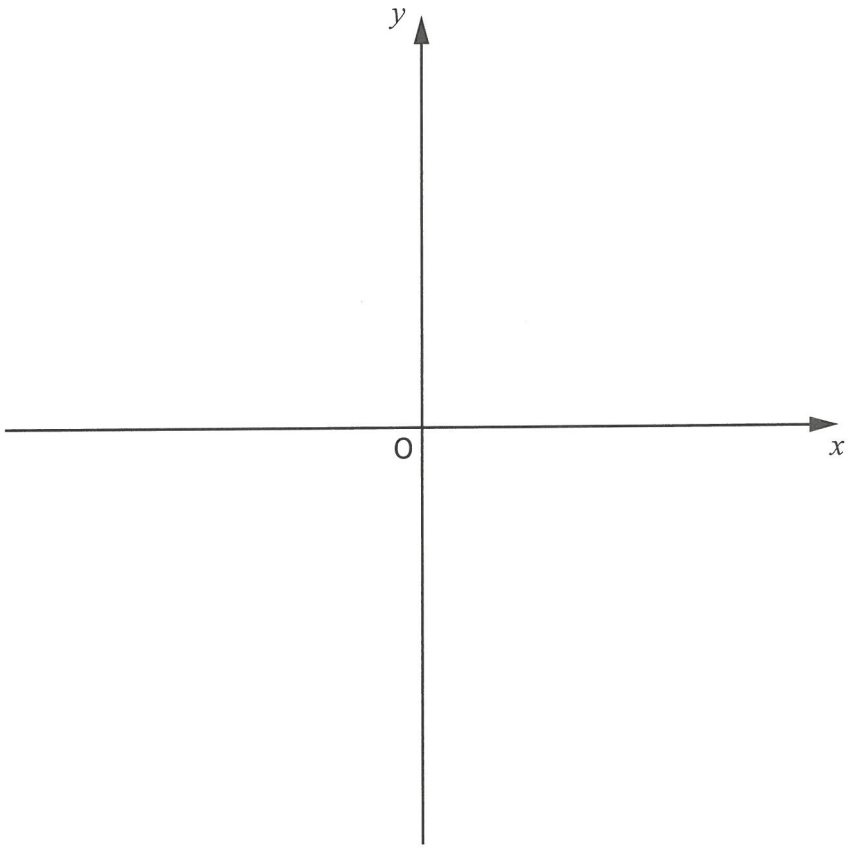
(b) M is the midpoint of CD.
State the coordinates of M. **1**

MARKS | DO NOT WRITE IN THIS MARGIN

12. On the axes below, sketch the graph of $y = (x+2)^2 + 3$.

On your sketch, show clearly the coordinates of the turning point and the point of intersection with the y-axis. **3**

(Additional axes, if required, can be found on *page 13*.)



MARKS | DO NOT WRITE IN THIS MARGIN

13. Given that $f(x) = 5\cos 2x°$, evaluate $f(90)$. 2

14. Solve the equation **by factorising**

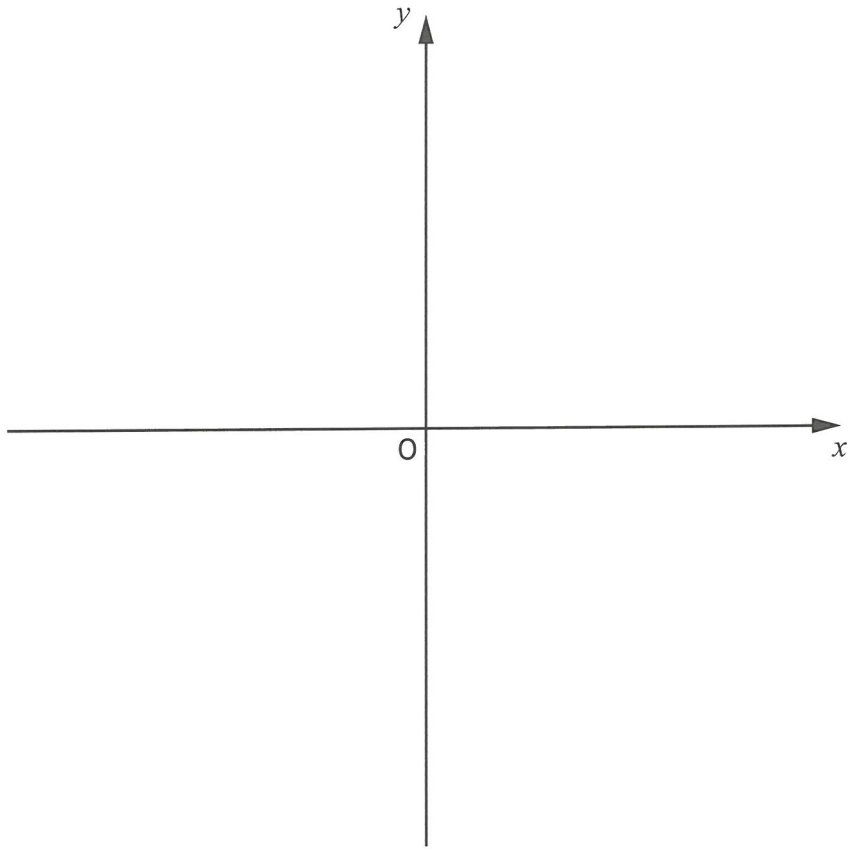
$$10x^2 + 11x - 6 = 0.$$ 3

[END OF QUESTION PAPER]

DO NOT WRITE IN THIS MARGIN

ADDITIONAL SPACE FOR ANSWERS

Additional axes for question 12



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ADDITIONAL SPACE FOR ANSWERS

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