



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

Level 2 Certificate

FURTHER MATHEMATICS

Paper 1 Non-Calculator

Monday 8 June 2026

Afternoon

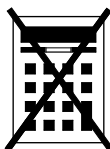
Time allowed: 1 hour 45 minutes

Materials

For this paper you must have:

- mathematical instruments
- the Formulae Sheet (enclosed).

You must **not** use a calculator.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more graph paper and tracing paper. These must be tagged securely to this answer book.

For Examiner's Use

Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22	
TOTAL	



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Answer **all** questions in the spaces provided.

- 1 (a)** Circle the set of numbers that is **not** a Pythagorean triple.

[1 mark]

3, 4, 5

5, 12, 13

7, 20, 21

8, 15, 17

- 1 (b)** Work out the distance between the points $(1, -3)$ and $(7, 5)$

[2 marks]

Answer _____ units



- 2 (a)** The function f is given by $f(x) = 9 - 2x$ with domain $-5 \leq x \leq 0$

Work out the range of f .

[2 marks]

Answer _____ $\leq f(x) \leq$ _____

- 2 (b)** g is a quadratic function with domain all values of x .

The range is $g(x) \geq 5$

Write down a possible function for g .

[1 mark]

$g(x) =$ _____

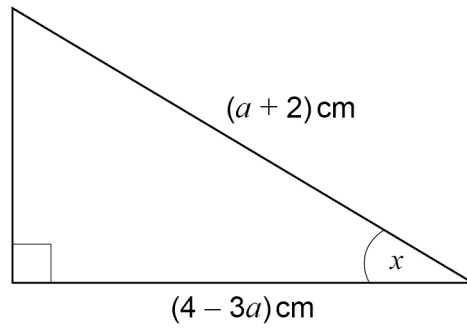
- 2 (c)** The function h is given by $h(x) = \frac{7}{2x-6}$

Give a reason why the domain of h **cannot** be $x \geq 0$

[1 mark]



Not drawn accurately



$$\cos x = \frac{7}{11}$$

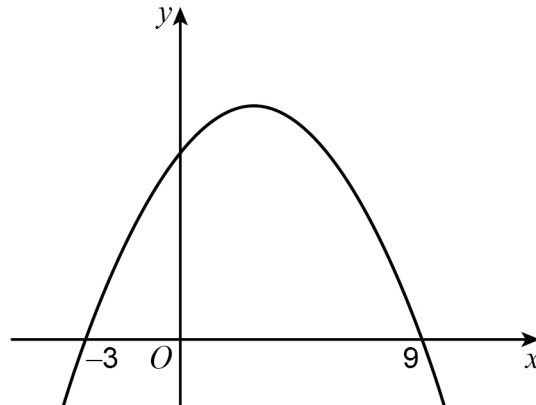
Work out the value of a .

[3 marks]

$a =$ _____



- 4 The curve $y = -x^2 + bx + c$ intersects the x -axis at the points $(-3, 0)$ and $(9, 0)$



Not drawn
accurately

- 4 (a) Work out the values of b and c .

[3 marks]

$b =$ _____ $c =$ _____

- 4 (b) Work out the coordinates of the maximum point on the curve.

[2 marks]

Answer (_____ , _____)



5 (a) Circle the identity matrix.

[1 mark]

$$\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$$

$$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$$

$$\begin{pmatrix} -1 & -1 \\ -1 & -1 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

5 (b) Work out $\begin{pmatrix} 2 & 6 \\ 4 & -2 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ -1 & 3 \end{pmatrix}$

Give your answer in the form $2 \begin{pmatrix} a & b \\ c & d \end{pmatrix}$ where a, b, c and d are integers.

[3 marks]

Answer _____



- 6** Work out the rate of change of y with respect to x when

$$y = 3x^4(2x^2 - 5)$$

[2 marks]

Answer _____

- 7** Rearrange $y = 8 + \frac{3}{rw}$ to make w the subject.

[3 marks]

Answer _____



8

The first three terms of a linear sequence are $\frac{9}{\sqrt{3}}$ $\frac{15}{\sqrt{3}}$ $\frac{21}{\sqrt{3}}$

Show that the n th term of the sequence can be written in the form

$$\sqrt{3}(an + b) \quad \text{where } a \text{ and } b \text{ are integers.}$$

[3 marks]



9 Solve $(x + x^{-1})^2 = \frac{1}{x^2} + 18$ where $x \neq 0$

[3 marks]

Answer _____

Turn over for the next question

Turn over ►



10

$$y = ax^3 + bx^2$$

When $x = 1$

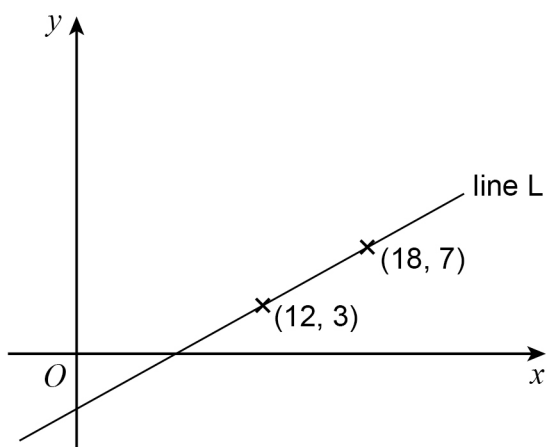
$$\frac{dy}{dx} = 2$$

$$\frac{d^2y}{dx^2} = 8$$

Work out the values of a and b .**[4 marks]**

 $a = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$ 

Here is a sketch of line L.



Use an algebraic method.

[4 marks]

Answer



12

Simplify fully

$$\frac{x^2 - x - 6}{5x + 10} \div \frac{3x - 9}{25}$$

[4 marks]

Answer _____



Solve the simultaneous equations

$$2d - 3f = 11$$

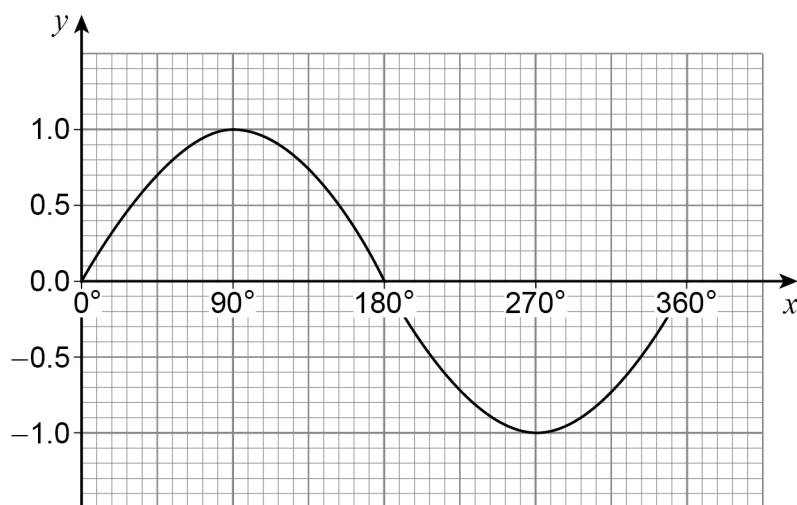
You **must** show your working.

[4 marks]

$d =$ _____ $e =$ _____ $f =$ _____



- 14** Here is the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$



- 14 (a)** You are given that $\sin 325^\circ = k$

Work out the other value of x for $0^\circ \leq x \leq 360^\circ$ when $\sin x = k$

[1 mark]

Answer _____ °

- 14 (b)** $0^\circ \leq a \leq 90^\circ$

$$\cos a = \frac{\sqrt{21}}{5}$$

$$\tan a = \frac{2}{\sqrt{21}}$$

Work out an approximate value for a .

[2 marks]

Answer _____



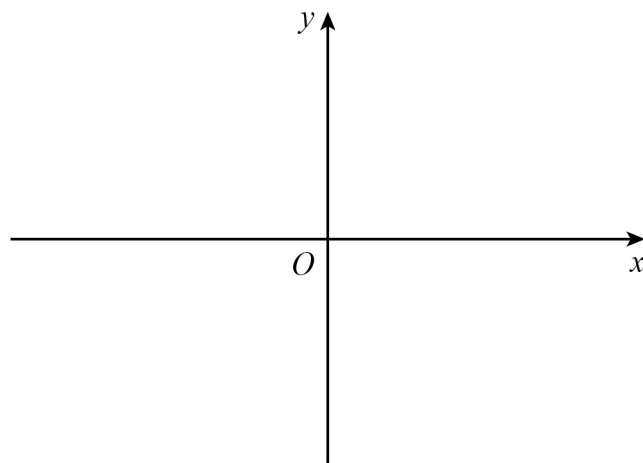
[4 marks]

$p =$ _____



16 f is a cubic function with

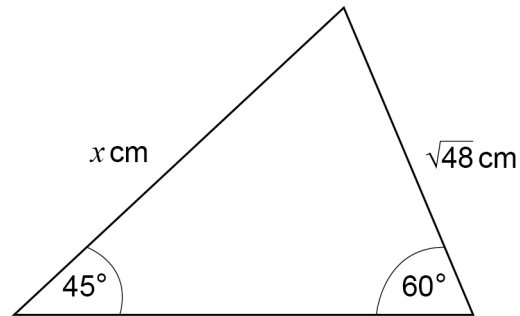
- a maximum point at (a, b) where $a < 0$ $b > 0$
- a minimum point at (c, d) where $c > 0$ $d < 0$
- $f(0) < 0$

16 (a)On the axes below, sketch a possible graph of $y = f(x)$ **[3 marks]****16 (b)**Write down an inequality for x when f is decreasing.**[1 mark]**

Answer _____ $< x <$ _____



17

Not drawn
accuratelyWork out the value of x .Give your answer in the form $k\sqrt{2}$ where k is an integer.You **must** show your working.**[4 marks]**

 $x =$ _____

Answer _____



19

3-digit integers are made using three **different** digits.

The digits are chosen from 1, 2, 4, 6, 7, 8

How many **even** integers can be made?

[3 marks]

Answer _____

Turn over for the next question

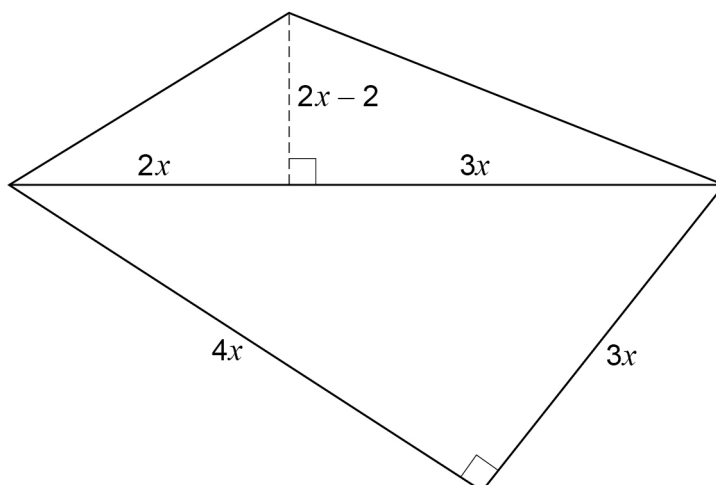


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21

A badge is made from two triangles joined together.

All lengths are in centimetres.



Not drawn accurately

The area of the badge is **less than** 16 cm^2

Show that the range of possible values of x is $1 < x < 1\frac{5}{11}$

[4 marks]

8

Turn over ►



Show that

Do **not** use trial and improvement or a graphical method.

[5 marks]

END OF QUESTIONS

5



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