Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE (9–1)

Wednesday 3 June 2026

Morning (Time: 2 hours)

Paper reference **4WM2H/01R**

Mathematics A (Modular)

UNIT 2H
Higher Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
- Anything you write on the formulae page will gain NO credit.

Information

- The total mark for this unit is 100.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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P:1/1/1/1/1/1/

P 8 1 6 4 9 A 0 1 2 8

Pearson

International GCSE Mathematics

Formulae sheet – Higher Tier

Arithmetic series

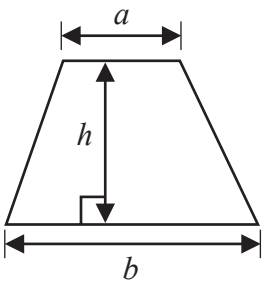
Sum to n terms, $S_n = \frac{n}{2}[2a + (n-1)d]$

The quadratic equation

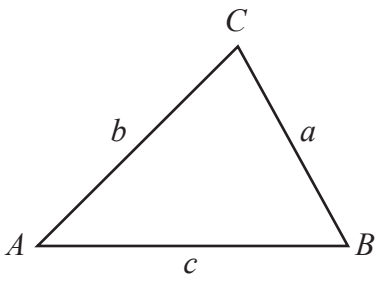
The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$ are given by:

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

Area of trapezium $= \frac{1}{2}(a + b)h$



Trigonometry



In any triangle ***ABC***

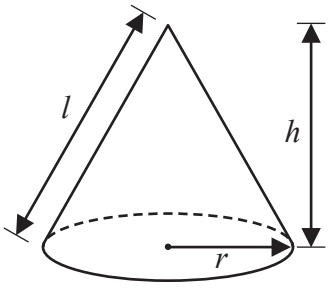
Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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

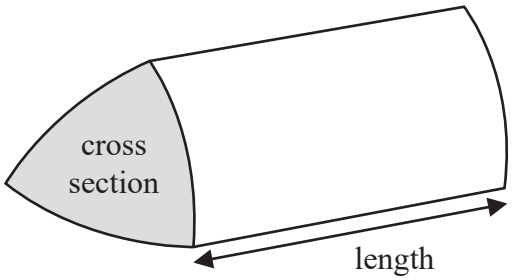
Area of triangle $= \frac{1}{2}ab\sin C$

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

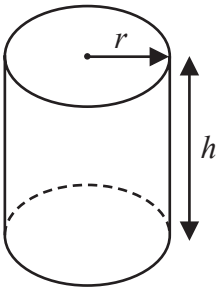
Curved surface area of cone $= \pi rl$



Volume of prism
= area of cross section × length

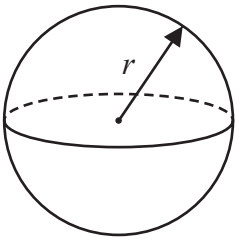


Volume of cylinder $= \pi r^2 h$
Curved surface area of cylinder $= 2\pi rh$



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

Surface area of sphere $= 4\pi r^2$



Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (i) Write 30 as a product of its prime factors.

.....

(1)

$A = 2^3 \times 3^7 \times 5$

$B = 5^6$

(ii) Write $30AB$ as a product of powers of its prime factors.

.....

(2)

(Total for Question 1 is 3 marks)

2 Triangle *ABC* is similar to triangle *DEF*

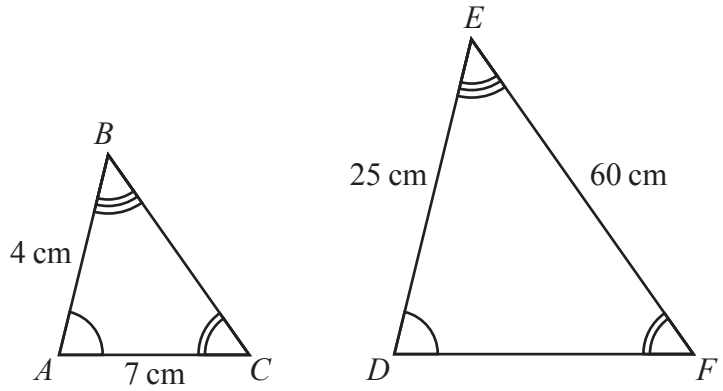


Diagram **NOT** accurately drawn

(a) Work out the length of *DF*

..... cm

(2)

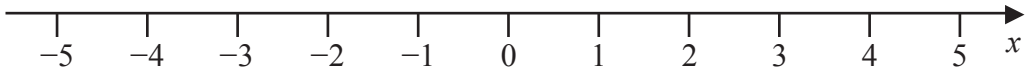
(b) Work out the length of *BC*

..... cm

(2)

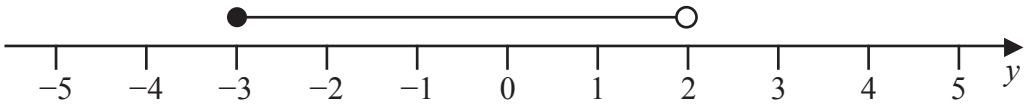
(Total for Question 2 is 4 marks)

3 (a) On the number line, represent the inequality $x \leqslant 1$



(1)

(b) Write down the inequality shown on the number line below.



.....

(2)

(c) Solve the inequality $4n + 17 > 8$

.....

(2)

(Total for Question 3 is 5 marks)

4 Sarah and Dej each give some money to charity **A** and to charity **B**

Sarah shares \$400 between charity **A** and charity **B** in the ratio 2 : 3

Dej shares \$375 between the two charities.
He gives twice as much money to charity **B** as he gives to charity **A**

Dej gives more money to charity **B** than Sarah gives to charity **B**

How much more?

\$.....

(Total for Question 4 is 5 marks)

5 Mika has six cards.
There is a number on each card.
The cards are arranged with the numbers in order of size.
Three of the numbers are hidden.

The mode of the six numbers is 8
The range of the six numbers is 7
The sum of the six numbers is 31

Work out the median of the six numbers.

.....

(Total for Question 5 is 4 marks)

6 (a) Write 4×10^{-5} as an ordinary number.

.....

(1)

(b) Work out $(6 \times 10^{158}) \times (2 \times 10^{72})$
Give your answer in standard form.

.....

(2)

(Total for Question 6 is 3 marks)

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7 Lauren's salary increased by 4%
After the increase, her salary was 36 400 euros.

Work out Lauren's salary before the increase.

..... euros

(Total for Question 7 is 3 marks)

8 Bag A contains 15 carrots.
The mean weight of the 15 carrots in bag A is 58 grams.

Bag B contains 35 carrots.
The mean weight of the 35 carrots in bag B is 72 grams.

Work out the mean weight of the 50 carrots.

..... grams

(Total for Question 8 is 3 marks)

9 Solve the simultaneous equations

$$4x + 3y = 21$$
$$2x - y = 5$$

Show clear algebraic working.

$x =$ .....

$y =$ .....

(Total for Question 9 is 3 marks)

10 Marie invests 5000 euros in a savings account for 3 years.
She gets 6% each year compound interest.

Work out how much money Marie will have in the savings account at the end of 3 years.
Give your answer correct to the nearest euro.

..... euros

(Total for Question 10 is 3 marks)

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11 Here is a solid cylinder.

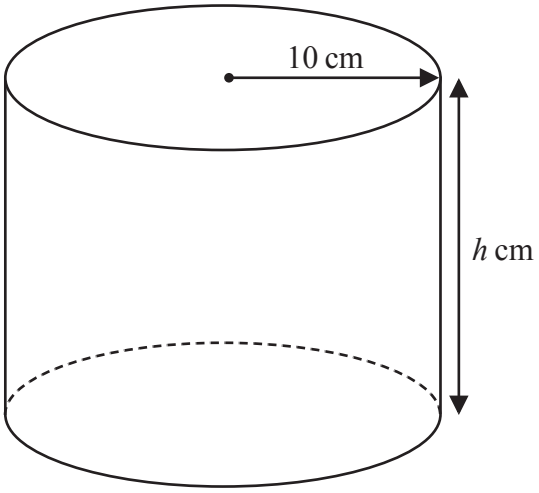


Diagram **NOT** accurately drawn

The radius of the cylinder is 10 cm
The height of the cylinder is h cm

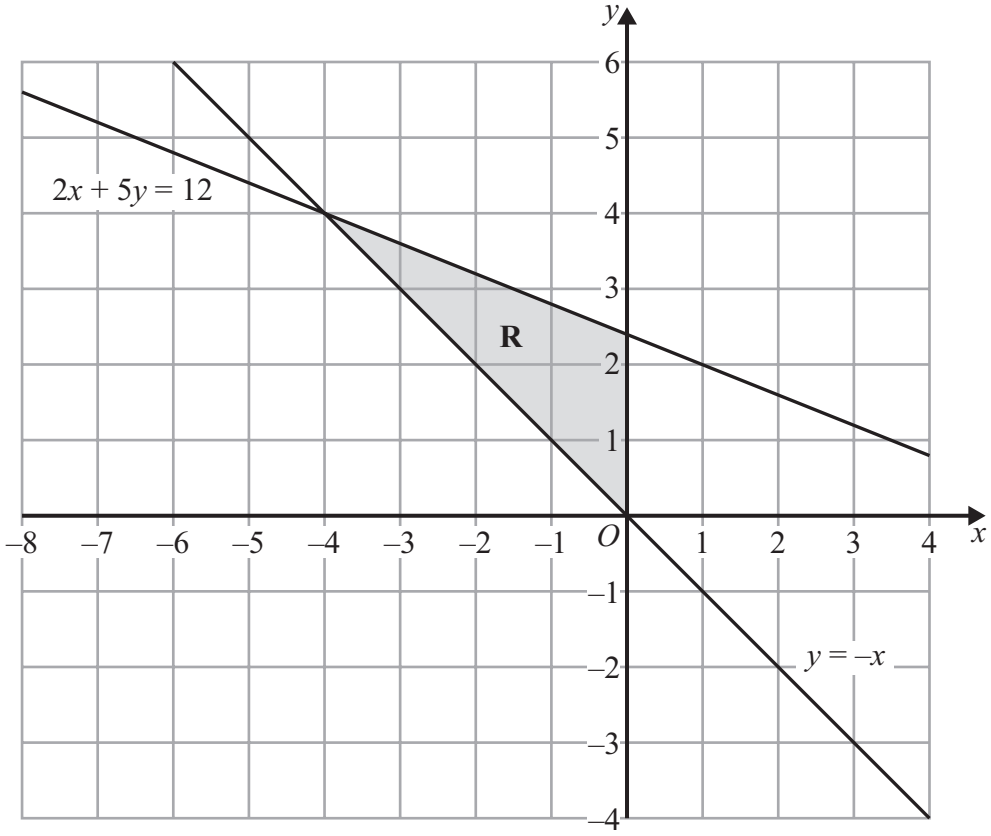
The volume of the cylinder is $5341\ \text{cm}^3$

Work out the **total** surface area of the cylinder.
Give your answer correct to the nearest whole number.

..... cm^2

(Total for Question 11 is 4 marks)

12



The region **R**, shown shaded in the diagram, is bounded by the y-axis and the straight lines with equations

$$y = -x$$

$$2x + 5y = 12$$

Write down the three inequalities that define **R**

.....

.....

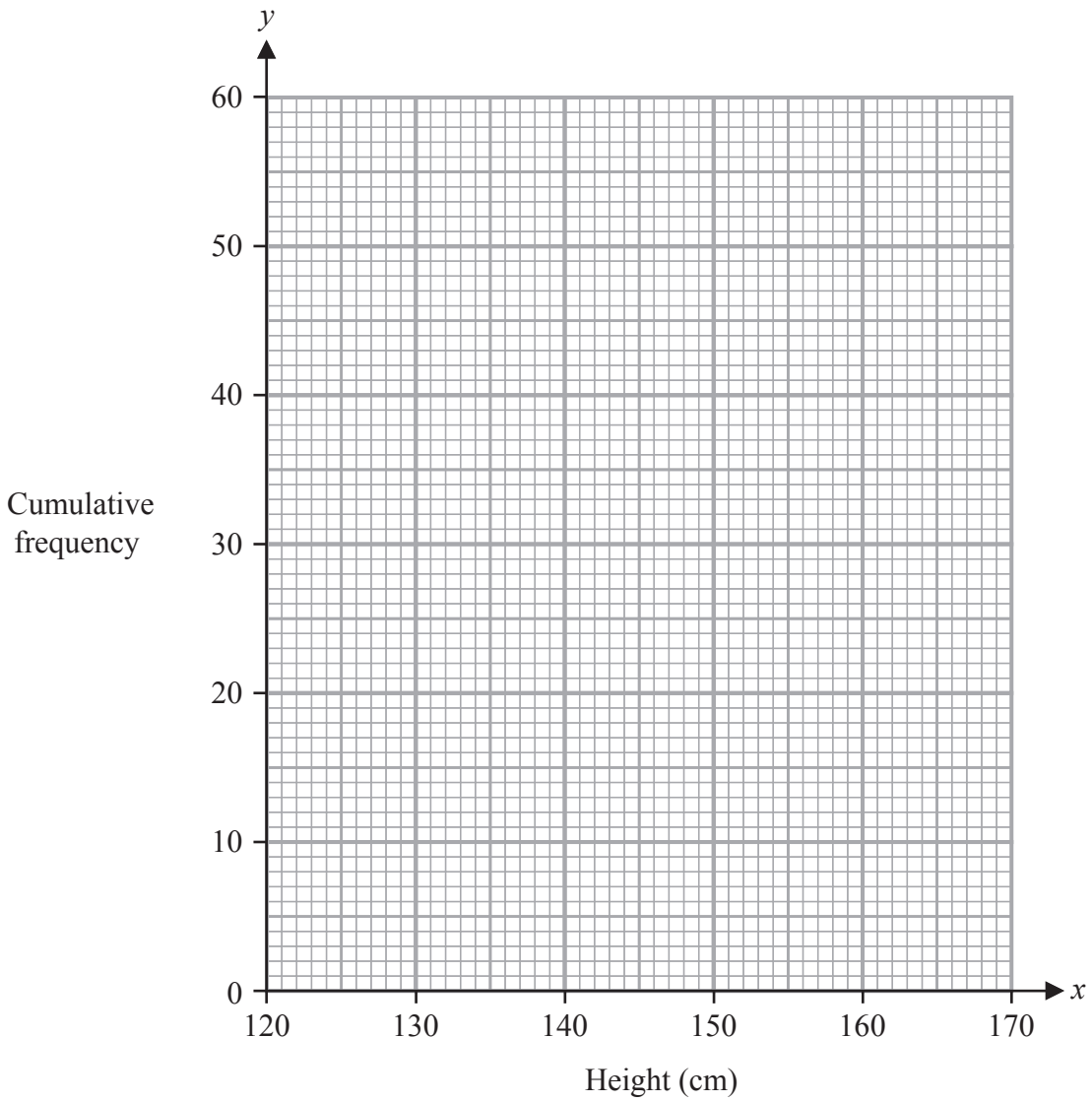
.....

(Total for Question 12 is 3 marks)

13 The cumulative frequency table shows information about the heights, in centimetres, of 60 plants.

Height (h cm)	Cumulative frequency
$120 \leqslant h < 130$	8
$120 \leqslant h < 140$	35
$120 \leqslant h < 150$	52
$120 \leqslant h < 160$	58
$120 \leqslant h < 170$	60

(a) On the grid, draw a cumulative frequency graph for this information.



(2)

(b) Use your graph to find an estimate for the median.

..... cm

(1)

(c) Use your graph to find an estimate for the lower quartile.

..... cm

(1)

(d) Use your graph to find an estimate for the number of plants with a height greater than 155 cm

.....

(2)

(Total for Question 13 is 6 marks)

14

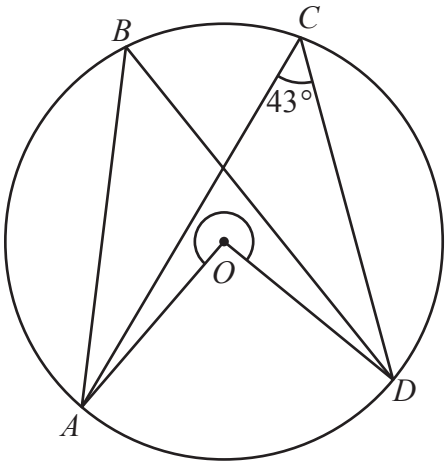


Diagram **NOT** accurately drawn

A, B, C and D are points on a circle, centre O

angle $ACD = 43°$

(a) (i) Find the size of angle ABD

.....°

(1)

(ii) Give a reason for your answer.

.....

.....

(1)

(b) Find the size of the reflex angle AOD

.....°

(2)

(Total for Question 14 is 4 marks)

15 Mina recorded the times taken, in minutes, by 11 people to complete a puzzle.
Here are her results.

2 2 3 6 7 9 9 12 13 17 20

Find the interquartile range of these times.

..... minutes

(Total for Question 15 is 2 marks)

16 m is directly proportional to r^2

$m = 180$ when $r = 6$

Find a formula for m in terms of r

.....

(Total for Question 16 is 3 marks)

17 The functions f and g are such that

$$f(x) = x^2 - 5$$

$$g(x) = 2x + 1$$

Solve $fg(x) = 2gf(x)$
Show clear algebraic working.

$x =$ .....

(Total for Question 17 is 4 marks)

18 Here are two vectors.

$$\overrightarrow{OA} = \begin{pmatrix} 4 \\ -3 \end{pmatrix} \qquad \overrightarrow{BA} = \begin{pmatrix} -15 \\ 8 \end{pmatrix}$$

(a) Find $2\overrightarrow{AO}$ as a column vector.

$2\overrightarrow{AO} = \begin{pmatrix} \ldots\ldots\ldots\ldots \\ \ldots\ldots\ldots\ldots \end{pmatrix}$

(1)

(b) Find $\overrightarrow{OB}$ as a column vector.

$\overrightarrow{OB} = \begin{pmatrix} \ldots\ldots\ldots\ldots \\ \ldots\ldots\ldots\ldots \end{pmatrix}$

(2)

(c) Calculate the magnitude of the vector $\overrightarrow{BA}$

.....

(2)

(Total for Question 18 is 5 marks)

19 Make x the subject of $y = \dfrac{3x+5}{4-2x}$

.....

(Total for Question 19 is 3 marks)

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20 The diagram shows a solid shape.

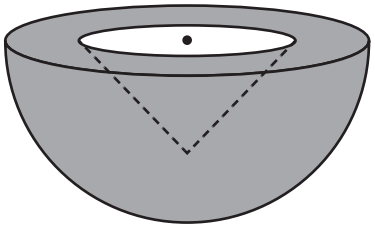


Diagram **NOT** accurately drawn

The solid shape is made by removing a cone from a hemisphere.

The radius of the cone is x cm
The height of the cone is x cm

The radius of the hemisphere is $2x$ cm

The volume of the solid shape is $\frac{3645}{8}\pi$ cm^3

Find the outer curved surface area of the solid shape.
Give your answer correct to the nearest whole number.

..... cm^2

(Total for Question 20 is 5 marks)

21 Solve the simultaneous equations

$$y^2 = x^2 + 7$$
$$y = 3x - 5$$

Show clear algebraic working.

.....

(Total for Question 21 is 5 marks)

22 **K**, **L** and **M** are three similar solids.

volume of **K** : volume of **L** = 125 : 216

surface area of **K** : surface area of **M** = 4 : 9

The height of **M** is y% greater than the height of **L**

Work out the value of y
Show your working clearly.

$y =$ .....

(Total for Question 22 is 5 marks)

23 A particle is moving along a straight line that passes through the fixed point O

The displacement, s metres, of the particle from O at time t seconds is given by

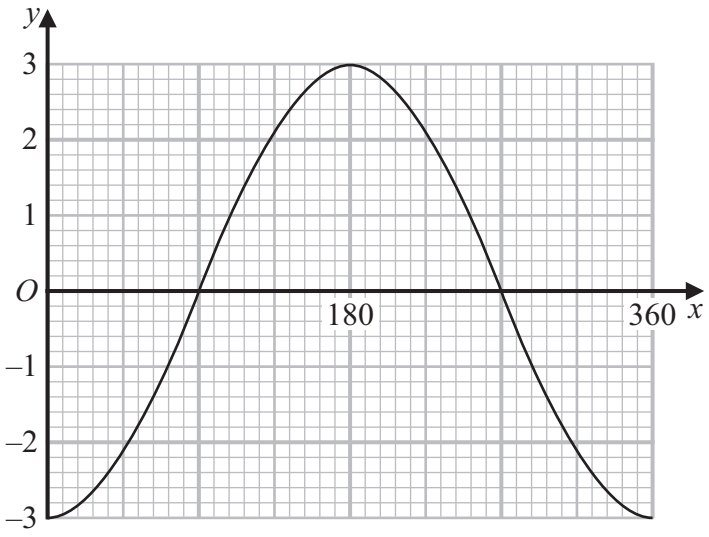
$$s = 15t^2 - t^3 + 12$$

Find the maximum velocity of the particle where $0 < t < 11$
Show clear algebraic working.

..... m/s

(Total for Question 23 is 5 marks)

24 The graph of $y = a\sin(x + b)°$ for $0 \leqslant x \leqslant 360$ is drawn on the grid below.



Given that $a < 0$ and that $0 < b < 360$

(a) find the value of a and the value of b

$a =$ .....

$b =$ .....

(2)

A curve has equation $y = f(x)$
The point T with coordinates (p, q) lies on the curve.

(b) Find the coordinates of the image of T on the curve with equation

$$y = f(2x) + 5$$

Give your coordinates in terms of p and q

(..... , ...)

(2)

(Total for Question 24 is 4 marks)

25 Here are the first four terms of an arithmetic series.

$(k + 2)$ $(k + 5)$ $(k + 8)$ $(k + 11)$

The sum of the first $2n$ terms of the series is 4 times the sum of the first n terms of the series.

Work out the numerical value of the 100th term of the series.
Show your working clearly.

.....

(Total for Question 25 is 6 marks)

TOTAL FOR UNIT IS 100 MARKS

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