

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Wednesday 11 June 2025 – Predicted paper

Morning (Time: 1 hour 30 minutes)

Paper
reference

1MA1/3H

Mathematics

PAPER 3 (Calculator)

Higher Tier



You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, Formulae Sheet (enclosed). 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.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 80
- 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.
- Try to answer every question.
- Check your answers if you have time at the end.

**Scan this
QR code
For the answers**



If this code fails,
please head over to
my YouTube channel
to find the answers.

Turn over ►

1 (a) Simplify $(h^6)^3$

.....
(1)

(b) Simplify $10k^{12} \div 2k^4$

.....
(2)

(Total for Question 1 is 3 marks)

2 Use your calculator to work out $2.5 + \frac{\sqrt{15.2^2 - 10}}{0.3}$

(a) Write down all the figures on your calculator display.

.....
(2)

(b) Write your answer to part (a) correct to 1 decimal place.

.....
(1)

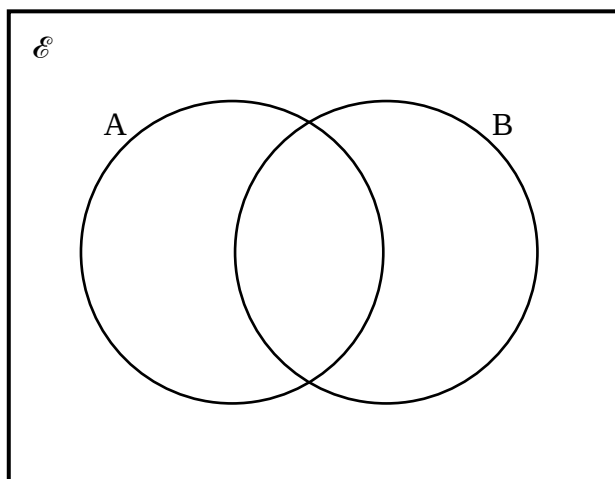
(Total for Question 2 is 3 marks)

3 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{\text{Multiples of 4}\}$

$B = \{\text{Factors of 20}\}$

(a) Complete the Venn diagram for this information.



(2)

One of the numbers is selected at random.

(b) Work out the probability that this number is in $A \cup B$

.....
(2)

(Total for Question 3 is 4 marks)

- 4 A brand-new shed is priced at £7000.
In a sale the shed is reduced to £5950.

What percentage has the shed been reduced by?

..... %

(Total for Question 4 is 2 marks)

- 5 Make y the subject of the formula $x = \sqrt{\frac{2y+1}{y-1}}$

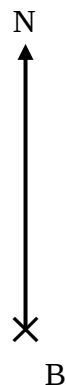
$y =$

(Total for Question 5 is 3 marks)

6 The accurate diagram shows the locations of two fire stations.

Fire station C is on a bearing of 075° from fire station A.

Fire station C is on a bearing of 305° from fire station B.



On the diagram mark with a cross (x) the location of fire station C.

(Total for Question 6 is 3 marks)

7 The number 180 has been rounded to the nearest ten.

Write down the error interval.

.....
 $\leq x <$

(Total for Question 7 is 2 marks)

8 Show that $2\frac{1}{2} \div 1\frac{4}{5} = 1\frac{7}{18}$

(Total for Question 8 is 3 marks)

9 Solve these simultaneous equations

$$\begin{aligned}2x - y &= 13 \\3x + 2y &= 12.5\end{aligned}$$

$x =$

$y =$

(Total for Question 9 is 3 marks)

- 10** A square based pyramid is resting with its square face on horizontal ground.
The pyramid has a weight of 45 N and its square face has a side length of 3cm.

What pressure is the pyramid exerting on the ground?
Give your answer in N/m².

$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$

..... N/m²

(Total for Question 10 is 3 marks)

11 A garden slug moves 15.2 cm in 1 minute 25 seconds.

Find the slugs average speed in m/s.

Give your answer correct to 2 significant figures.

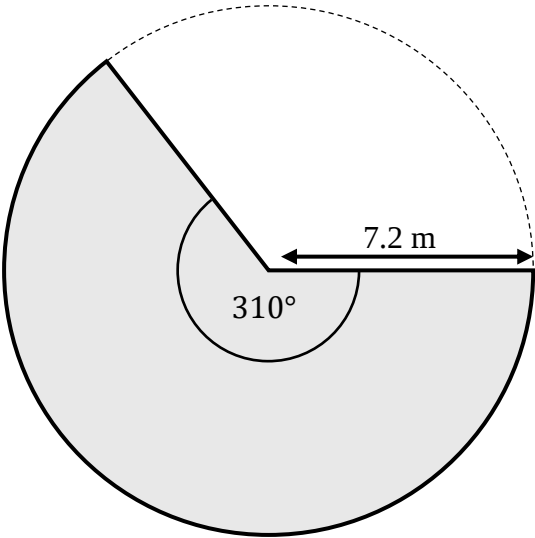
..... m/s

(Total for Question 11 is 3 marks)

12 Factorise fully $36y^2 - 169$

.....
(Total for Question 12 is 3 marks)

13



The circle has a radius of 7.2 cm.

Work out the area of the major sector.

Give your answer correct to 2 decimal places.

.....cm²

(Total for Question 13 is 3 marks)

- 14** Kobe placed £1500 into a savings account offering 3.2% interest for the first year, then 0.9% compound interest for every year after.

How much interest will Kobe have gained in 3 years time?

£

(Total for Question 14 is 3 marks)

- 15** The second term of a geometric sequence is 6.
The fourth term of the same geometric sequence is 54.

There are two possible values that could be the fifth term.
Write down both values.

.....
(Total for Question 15 is 4 marks)

16 Desi wants to work out an estimate for the total number of bats in a cave.

On Monday, Desi catch 50 bats from the cave, puts a tag on each of them, then releases them back into the cave.

On Tuesday Desi catches 130 bats from the same cave.
4 of these bats have a tag from Monday.

Work out an estimate for the total number of bats in the cave.

.....
(Total for Question 16 is 3 marks)

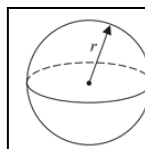
- 17 The equation of a curve is $y = 3x^2 + 12x$
The curve has one turning point.

By completing the square show that the coordinates of the turning point are $(-2, -12)$
You must show all your working.

.....
(Total for Question 17 is 3 marks)

18 Find the radius of a sphere with a volume of 2572 cm^3

Give your answer correct to 2 significant figures.



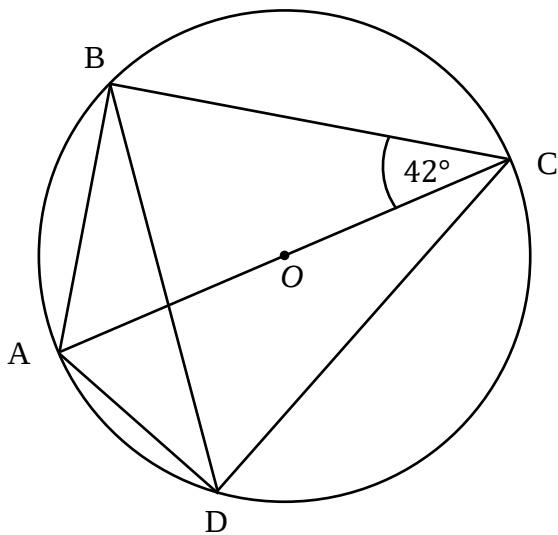
$$\text{Surface area} = 4\pi r^2$$

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

..... cm

(Total for Question 18 is 3 marks)

19 A,B,C and D are points o a circle with centre O.



AOC is a straight line.
Angle ACB is 42

Work out the size of angle CDB
Give reasons for each stage of your working.

(Total for Question 19 is 4 marks)

- 20** Jessica has 152 litres of oil, correct to the nearest litre.
Jessica pours the oil into containers of volume 2.6 litres correct to 1 decimal place.

By considering bounds, work out how many containers Jessica can fill.
Give your answer to a suitable degree of accuracy.
You must show all your working and give a reason for your final answer.

.....
(Total for Question 20 is 4 marks)

21 Express $\frac{x}{x^2 - 9} + \frac{x + 2}{x^2 - 5x + 6}$ as a single fraction in its simplest form.

.....
(Total for Question 21 is 4 marks)

22 The equation $2x^3 + 2x - 7 = 0$ has one solution.

(a) Show that $2x^3 + 2x - 7 = 0$ can be written as $x = \sqrt[3]{\frac{7-2x}{2}}$

3

(2)

(b) Using the iteration $x_{n+1} = \sqrt[3]{\frac{7-2x_n}{2}}$ find the solution to $2x^3 + 2x - 7 = 0$ to 3 decimal places.

Use $x_0 = 1$ as a starting value.

.....
(3)

(Total for Question 22 is 5 marks)

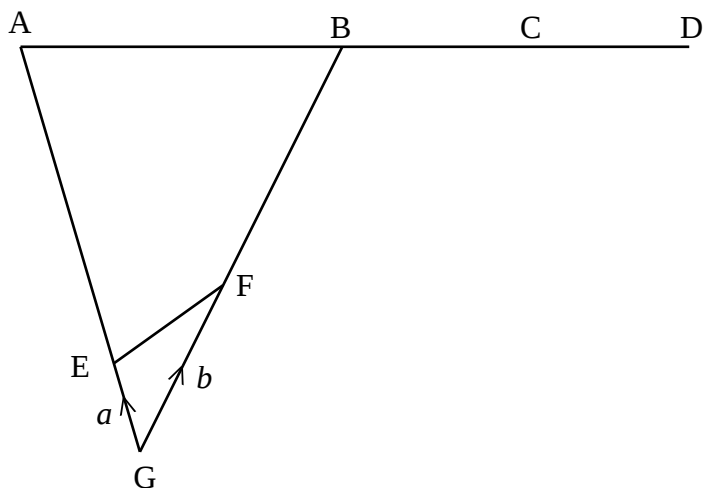
- 23** The graph of $y = f(x)$ is transformed to give the graph $y = 2f(x - 1)$
The point P on the graph $y = f(x)$ is mapped to point Q on the graph $y = 2f(x - 1)$

The coordinates of point P are $(7, -2)$

Find the coordinates of point Q.

.....
(Total for Question 23 is 3 marks)

24



$$GA = 5GE$$

$$GB = 3GF$$

B is the midpoint of AD.

C is the midpoint of BD.

(a) Write down the vector AB in terms of a and b.

.....

(2)

(b) Prove that EFC is not a straight line.

.....

(4)

(Total for Question 24 is 6 marks)

TOTAL FOR PAPER IS 80 MARKS