

Write your name here

Surname

Other names

In the style of:

Pearson Edexcel

Level 1/Level 2 GCSE (9 - 1)

Centre Number

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Candidate Number

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Mathematics

Bounds

Higher Tier

GCSE style questions arranged by topic

Paper Reference

1MA1/2H

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

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►



1

$$w = \sqrt{\frac{x}{y}}$$

$x = 5.43$ correct to 2 decimal places.

$y = 4.514$ correct to 3 decimal places.

By considering bounds, work out the value of w to a suitable degree of accuracy.

You must show all your working and give a reason for your final answer.

$w =$

(Total for Question 1 is 5 marks)



2 An arrow is shot vertically upwards at a speed of V metres per second.

The height, H metres, to which it rises is given by

$$H = \frac{V^2}{2g}$$

where $g \text{ m/s}^2$ is the acceleration due to gravity.

$V = 24.4$ correct to 3 significant figures.

$g = 9.8$ correct to 2 significant figures.

(i) Write down the upper bound of g .

.....

(ii) Calculate the lower bound of H .
Give your answer correct to 3 significant figures.

.....

(Total for Question 2 is 3 marks)



3 A building plot is in the shape of a rectangle.

The width of the field is 26 metres, measured to the nearest metre.(a)

Work out the upper bound of the width of the field.

..... metres

(1)

The length of the field is 135 metres, measured to the nearest 5 metres.

(b) Work out the upper bound for the perimeter of the field.

..... metres

(3)

(Total for Question 3 is 4 marks)



- 4 Sophie drove for 238 miles, correct to the nearest mile.
She used 26.3 litres of petrol, to the nearest tenth of a litre.

$$\text{Petrol consumption} = \frac{\text{Number of miles travelled}}{\text{Number of litres of petrol used}}$$

Work out the upper bound for the petrol consumption for Sophie's journey. Give your answer correct to 2 decimal places.

..... miles per litre

(Total for Question 4 is 3 marks)



5 (a) A solid cube has sides of length 5 cm.

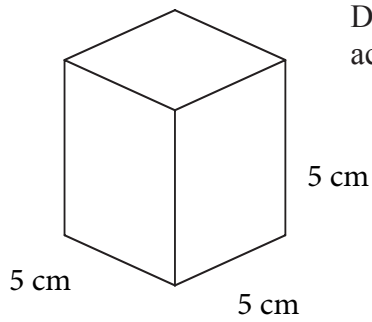


Diagram **NOT** accurately drawn

Work out the total surface area of the cube. State the units of your answer.

.....
(4)

(b) Change 125 cm^3 into mm^3 .

..... mm^3
(2)

The weight of the cube is 77 grams, correct to the nearest gram.

(c) (i) What is the minimum the weight could be?

..... grams

(ii) What is the maximum the weight could be?

..... grams



6 The length of a line is 53 centimetres, correct to the nearest centimetre.

(a) Write down the **least** possible length of the line.

..... centimetres
(1)

(b) Write down the **greatest** possible length of the line.

..... centimetres
(1)

(Total for Question 6 is 2 marks)



7 The voltage V of an electronic circuit is given by the formula

$$V = IR$$

where I is the current in amps
and R is the resistance in ohms.

Given that $V = 208$ correct to 3 significant figures,
 $R = 12.8$ correct to 3 significant figures,

calculate the lower bound of I .

.....
(Total for Question 7 is 3 marks)



8 The average fuel consumption (c) of Tara's car, in kilometres per litre, is given by the formula

$$c = \frac{d}{f}$$

where d is the distance travelled, in kilometres, and f is the fuel used, in litres.

$d = 153$ correct to 3 significant figures.

$f = 43.3$ correct to 3 significant figures.

By considering bounds, work out the value of c to a suitable degree of accuracy.
You must show **all** of your working **and** give a reason for your final answer.

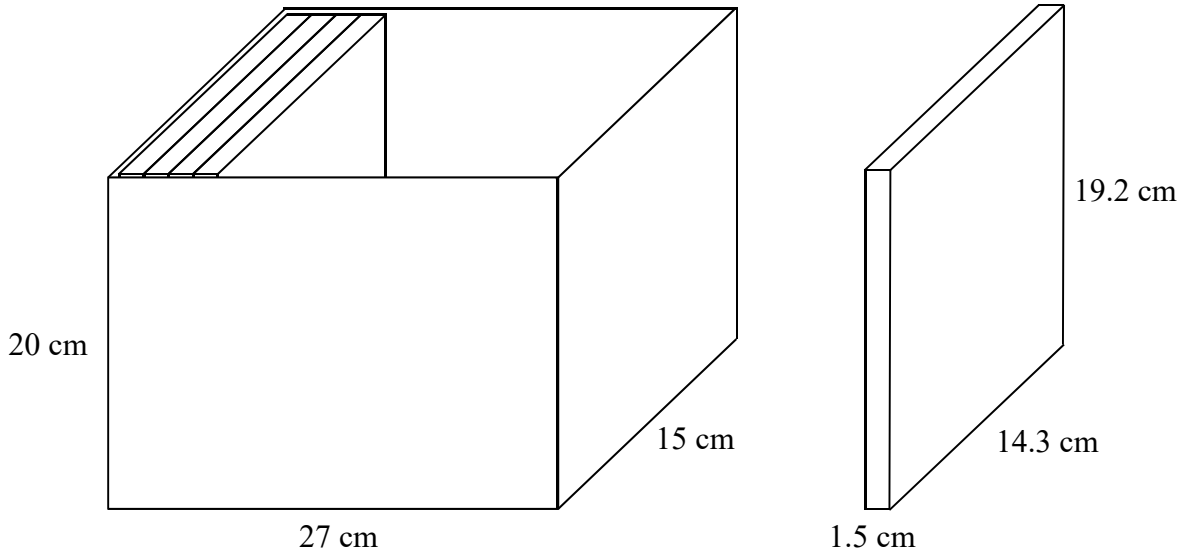
$c = \dots\dots\dots$

(Total for Question 8 is 5 marks)



9 A box is a cuboid with dimensions 27 cm by 15 cm by 20 cm
These dimensions are to the nearest **centimetre**.

DVD cases are cuboids with dimensions 1.5 cm by 14.3 cm by 19.2 cm
These dimensions are to the nearest **millimetre**.



Show that 17 DVD cases, stacked as shown, will definitely fit in the box.

(Total for Question 9 is 4 marks)



10 $m = \frac{\sqrt{s}}{t}$ $s = 3.47$ correct to 3 significant figures
 $t = 8.132$ correct to 4 significant figures

By considering bounds, work out the value of m to a suitable degree of accuracy.
Give a reason for your answer.

(Total for Question 10 is 5 marks)



11 (a) The attendance at a football match was 67 500, correct to the nearest hundred.

(i) What was the **highest** possible attendance?

(a)(i)

(1)

(ii) What was the **lowest** possible attendance?

(ii)

(1)

(b) A distance, d , was given as 6.73 m, **truncated** to 2 decimal places.

Complete the error interval for the distance, d .

(2)

..... $\leq d <$

(Total for Question 11 is 4 marks)

