

1MA1 Higher themed papers: Upper and Lower bounds

Write your name here	
Surname	Other names
Centre Number	Candidate Number
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Pearson Edexcel Level 1/Level 2 GCSE (9–1)	
Mathematics	
Upper and Lower bounds	
	Paper Reference 1MA1
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.
- 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.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **19**. There are **7** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- 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.

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- 1** A number, n , is rounded to 2 decimal places.
The result is 4.76.
Using inequalities, write down the error interval for n .

.....
(Total for Question 1 is 2 marks)

- 2** Sally used her calculator to work out the value of a number y .
The answer on her calculator display began
8.3
Complete the error interval for y .

..... $\leq y <$

(Total for Question 2 is 2 marks)

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- 3** (a) Find the value of the reciprocal of 1.6.
Give your answer as a decimal.

.....
(1)

Jess rounds a number, x , to one decimal place.
The result is 9.8.

- (b) Write down the error interval for x .

.....
(2)

(Total for Question 3 is 3 marks)

- 4** Kiera used her calculator to work out the value of a number x .
She wrote down the first two digits of the answer on her calculator.
She wrote down 7.3
Write down the error interval for x .

.....
(Total for Question 4 is 2 marks)

- 5** Martin truncates the number N to 1 digit.
The result is 7
Write down the error interval for N .

.....
(Total for Question 5 is 2 marks)

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6 $m = \frac{1}{ps}$

$p = 5.37$ correct to 2 decimal places.

$s = 2.9$ correct to 1 decimal place.

Calculate the upper bound for the value for m .

You must show your working.

.....
(Total for Question 6 is 3 marks)

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7

$$v = \sqrt{\frac{a}{b}}$$

$a = 6.43$ correct to 2 decimal places.

$b = 5.514$ correct to 3 decimal places.

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

.....
(Total for Question 7 is 5 marks)

TOTAL MARKS FOR PAPER: 19