Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
TOTAL	

mathsrevision revisionworld

GCSE
Mathematics (Calculator Paper)

Practice Paper Style Questions – Topic: Bounds (Higher Tier)

For this paper you must have:	
• black pen • HB pencil • ruler (with cm & mm) • rubber • protractor • compass • pencil sharpener • calculator	

Time allowed
- 1 hour

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 space provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is **33**.
  The quality of your written communication is specifically assessed in questions indicated with an asterisk (*)
- You may ask for more answer paper and graph paper.
  These must be tagged securely to this answer booklet.
- A calculator MAY be used.

Advice
- Read each question carefully before you answer it.
- In all calculations, show clearly how you work out your answer.
- Check your answers if you have time at the end.

There are no questions printed on this page

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ANSWER IN THE SPACES PROVIDED

Do not write outside the box

1 $a = \sqrt{\frac{x}{y}}$

$x = 6.23$ correct to 2 decimal places.

$y = 5.431$ correct to 3 decimal places.

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

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

Answer .....a =..... *(5 marks)*

5

2 A ball is dropped from a height and falls at a speed of V metres per second.

The height, H metres, from which it falls is given as:

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

g is the acceleration due to gravity measured in m/s^2

Given that:

$V = 12.2$ correct to 3 significant figures.

$g = 7.6$ correct to 2 significant figures.

(i) Write down the upper bound of g.

Answer ..... *(1 mark)*

(ii) Calculate the lower bound of H.

Give your answer correct to 3 significant figures.

Answer ..... *(2 marks)*

3 A football pitch is in the shape of a rectangle.

The width of the pitch is **68 metres**, measured to the *nearest metre*.

(a) Work out the upper bound of the width of the pitch.

Answer .....*metres*..... *(1 mark)*

The length of the pitch is **105 metres**, measured to the *nearest 5 metres*.

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

Answer .....*metres*..... *(3 marks)*

7

4 Jo drove for **346 miles**, correct to the *nearest mile*.

She used **31.4 litres** of diesel, to the *nearest tenth of a litre*.

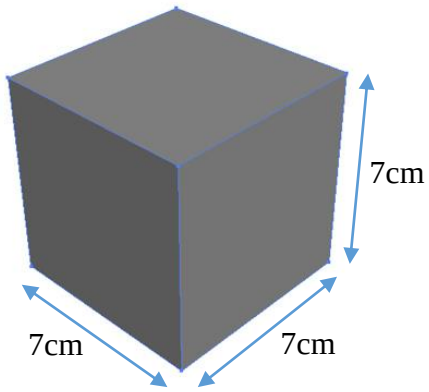
$$Fuel\ consumption = \frac{Number\ of\ miles\ travelled}{Number\ of\ litres\ of\ diesel\ used}$$

Work out the upper bound for the fuel consumption for Jo's journey.

Give your answer correct to two decimal places.

Answer *.....……..miles per litre.....* ***(3 marks)***

5



(a) A solid cube has sides of length 7cm.

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

Answer ..... *(4 marks)*

(b) Change $343cm^3$ into mm^3.

Answer .....*mm^3*..... *(2 marks)*

(c) The weight of the cube is 86 grams, correct to the nearest gram.

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

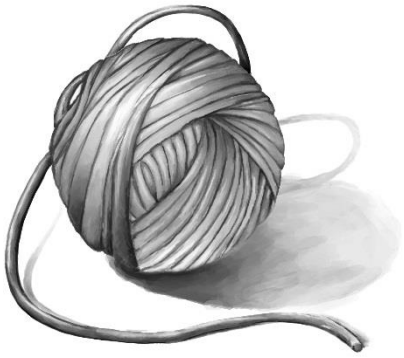
Answer .....*grams*..... *(1 mark)*

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

Answer .....*grams*..... *(1 mark)*

11

6 The length of a piece of string is **89 centimetres**, correct to the *nearest centimetre*.



(a) Write down the **shortest** possible length of the string.

Answer *.....…….....centimetres..... (1 mark)*

(b) Write down the **longest** possible length of the string.

Answer *…… centimetres…...(1 mark)*

7 Ohm's Law shows the relationship between voltage, current, and resistance in a simple electrical circuit.

The voltage $\boldsymbol{V}$ of a circuit is given by the formula:

$$\boldsymbol{V = \frac{I}{R}}$$

$\boldsymbol{I}$ is the current, in amps
$\boldsymbol{R}$ is the resistance, in ohms

Given that:

$\boldsymbol{V = 176}$ correct to 3 significant figures.

$\boldsymbol{R = 18.4}$ correct to 3 significant figures.

calculate the lower bound of $\boldsymbol{I}$.

Answer .....*amps*..... *(3 marks)*

5

8 The average fuel consumption $\boldsymbol{c}$ of Paul's car is measured in kilometres per litre and is calculated using the following formula:

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

$\boldsymbol{d}$ is the distance travelled, in kilometres
$\boldsymbol{f}$ is the amount of fuel used, in litres

$\boldsymbol{d = 278}$ correct to 3 significant figures.

$\boldsymbol{f = 22.3}$ correct to 3 significant figures.

By considering bounds, work out the value of $\boldsymbol{c}$ to a suitable degree of accuracy.

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

Answer ..... $\boldsymbol{c}$ =..... *(5 marks)*

END OF QUESTIONS

There are no questions printed on this page

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5