Degree of accuracy

Question Paper

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Number and Algebra
Sub Topic	Degree of accuracy
Booklet	Question Paper

Time Allowed: 46 minutes

Score: /38

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

1   y = 1.8 correct to 1 decimal place.

Calculate the lower bound for the value of $4y + 1$

....

(Total for Question 1 is 2 marks)

2   The length of a fence is 137 metres, correct to the nearest metre.

Write down

(i)   the lower bound for the length of the fence,

.... metres

(ii) the upper bound for the length of the fence.

.... metres

(Total for Question 2 is 2 marks)

3 Correct to 2 decimal places, the volume of a solid cube is 42.88 cm^3

Calculate the lower bound for the surface area of the cube.

.... cm^2

(Total for Question 3 is 4 marks)

4 (a) Correct to the nearest millimetre, the length of a side of a regular hexagon is 3.6 cm.

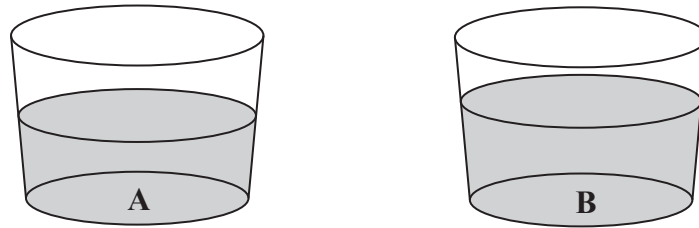Calculate the upper bound for the perimeter of the regular hexagon.

.... cm

(2)

(b) Correct to 1 significant figure, the area of a rectangle is 80 cm^2
Correct to 2 significant figures, the length of the rectangle is 12 cm.

Calculate the lower bound for the width of the rectangle.
Show your working clearly.

.... cm

(3)

(Total for Question 4 is 5 marks)

5

Glass **A** contains 122 millilitres of water, correct to the nearest millilitre.
Glass **B** contains 168 millilitres of water, correct to the nearest millilitre.

Calculate the upper bound of the difference, in millilitres, between the volume of water in glass **A** and the volume of water in glass **B**.

.... millilitres

(Total for Question 5 is 2 marks)

6 There are 1300 sheets of paper, correct to the nearest 100 sheets, in a pile.
Each sheet is of equal thickness.
The height of the pile is 160 mm, correct to the nearest 10 mm.

Calculate the upper bound, in millimetres, for the thickness of one sheet of paper.

.... mm

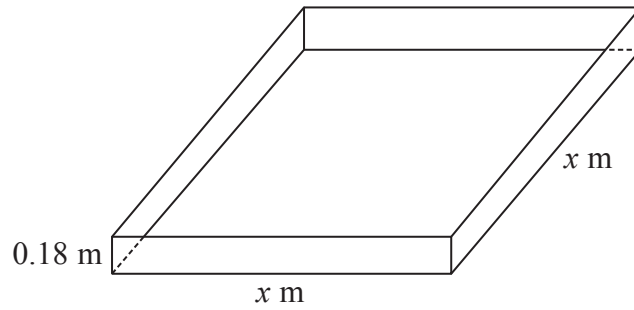**(Total for Question 6 is 3 marks)**

7

Diagram **NOT**
accurately drawn

x m

0.18 m

x m

Trena wants to build a sandpit in the shape of a cuboid.
The volume of sand in the sandpit will be 1.0 m³, correct to 1 decimal place.
The depth of sand in the sandpit will be 0.18 metres, correct to 2 decimal places.
The sandpit will have a square base with sides of length x metres.

Find the upper bound for x
Give your answer correct to 3 significant figures.

upper bound = ...

(Total for Question 7 is 4 marks)

8 Rachael walks to school.
The distance to school is 2.8 km, correct to the nearest 0.1 km.
She walks at a speed of 5 km/h, correct to the nearest km/h.

Calculate the upper bound, in minutes, for the time Rachael takes to walk to school.

.... minutes

(Total for Question 8 is 3 marks)

9   (a) Complete the table to show each number written correct to 1 significant

Number	42.37	58.92	21.04
Number written correct to 1 significant figure			

(2)

(b) Use the approximations in part (a) to work out an estimate for the value of

$$\frac{42.37 + 58.92}{21.04}$$

Show clearly how you obtain your answer.

....

(2)

(Total for Question 9 is 4 marks)

10 An athlete runs 400 metres, correct to the nearest metre.
The athlete takes 50.2 seconds, correct to the nearest 0.1 of a second.

Work out the upper bound of the athlete's average speed.
Give your answer correct to 3 significant figures.

.... m/s

(Total for Question 10 is 3 marks)

11 $y = \dfrac{2a}{b - c}$

$a = 42$ correct to 2 significant figures.
$b = 24$ correct to 2 significant figures.
$c = 14$ correct to 2 significant figures.

Work out the lower bound for the value of y.
Give your answer correct to 2 significant figures.
Show your working clearly.

(Total for Question 11 is 3 marks)

12 Correct to 2 significant figures, $a = 58$, $b = 28$ and $c = 18$

Calculate the upper bound for the value of $\dfrac{a}{b-c}$

Show your working clearly.

....

(Total for Question 12 is 3 marks)