

Non-Calculator Questions

Rounding, Estimation & Bounds

Rounding & Estimation / Upper & Lower Bounds

Easy (9 questions)	/13
Medium (10 questions)	/16
Hard (4 questions)	/10
Total Marks	/39

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Easy Questions

- 1 The mass, m kilograms, of a horse is 429 kg, correct to the nearest kilogram.

Complete this statement about the value of m .

$$\dots\dots\dots \leq m < \dots\dots\dots$$

(2 marks)

- 2 Write 0.047883 correct to 2 significant figures.

(1 mark)

- 3 Write 1.8972 correct to 2 decimal places.

(1 mark)

- 4 Write the number 10 100 correct to 2 significant figures.

(1 mark)

- 5 Write 209 802 correct to the nearest thousand.

(1 mark)

- 6 Write 4123 correct to 3 significant figures.

(1 mark)

7 The mass of a cat is 4.3 kg correct to 2 significant figures.

i) Write down the upper bound of the weight of the cat.

..... kg [1]

ii) Write down the lower bound of the weight of the cat.

..... kg [1]

(2 marks)

8 The length of a book is 33.8 cm, correct to one decimal place.

i) Write down the lower bound of the length of the book.

..... cm [1]

ii) Write down the upper bound of the length of the book.

..... cm [1]

(2 marks)

9 The length of a table is 110 cm to the nearest cm

Complete the error interval.

.....cm $\leq$ length <cm

(2 marks)

Medium Questions

- 1 Write 57.3997 correct to 4 significant figures.

(1 mark)

2

$$T = \frac{49.2 - 9.50}{4.085 \times 2.35}$$

By writing each number correct to 1 significant figure, work out an estimate for T .
You must show all your working.

(2 marks)

- 3 The length, l cm, of a line is 18.3 cm, correct to the nearest millimetre.

Complete this statement about the value of l .

..... $\leq l <$
(2 marks)

- 4 Ella's height is 175 cm, correct to the nearest 5 cm.

Write down the upper bound of Ella's height.

..... cm

(1 mark)

- 5 An equilateral triangle has sides of length 15 cm, correct to the nearest centimetre.
Calculate the upper bound of the perimeter of this triangle.

..... cm

(1 mark)

- 6 The length of the side of a square is 12 cm, correct to the nearest centimetre.

Calculate the upper bound for the perimeter of the square.

..... cm

(2 marks)

- 7 Jo measures the length of a rope and records her measurement correct to the nearest ten centimetres.

The upper bound for her measurement is 12.35 m.

Write down the measurement she records.

.....m

(1 mark)

- 8 i) 29 parcels each have a value of \$68. By writing each of these numbers correct to 1 significant figure, find an estimate for the total value of these 29 parcels.

\$ [1]

ii) Without doing any calculation, complete this statement.

The actual total value of these 29 parcels is less than the answer to **part (i)**

because [1]

(2 marks)

- 9 Each side of a regular octagon has a length of 18 mm, correct to the nearest 0.5 mm

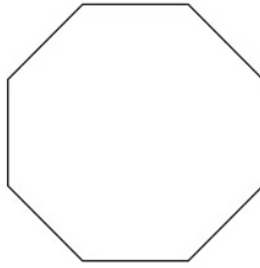


Diagram **NOT**
accurately drawn

- i) Write down the lower bound of the length of each side of the octagon.

[1]

- ii) Write down the upper bound of the length of each side of the octagon.

[1]

(2 marks)

- 10 To the nearest 1000, there are 18 000 people at a festival.

- i) Write down the minimum possible number of people at the festival.

[1]

- ii) Write down the maximum possible number of people at the festival.

[1]

(2 marks)

Hard Questions

1 $P = 2(w + h)$

$w = 12$ correct to the nearest whole number.

$h = 4$ correct to the nearest whole number.

Work out the upper bound for the value of P .

(2 marks)

2

$$A = \frac{b \times h}{2}$$

$A = 10$, correct to the nearest whole number.

$h = 4$, correct to the nearest whole number.

Work out the upper bound for the value of b .

(3 marks)

- 3 The space allowed for each tent is a rectangle measuring 8 m by 6 m, each correct to the nearest metre.

Calculate the upper bound for the area of the space allowed for each tent.

..... m²

(2 marks)

4 The length of a roll of ribbon is 30 metres, correct to the nearest half-metre.

A piece of length 5.8 metres, correct to the nearest 10 centimetres, is cut from the roll.

Work out the maximum possible length of ribbon left on the roll.

.....metres

(3 marks)