

# Bounds

## Question Paper 2

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Bounds
Booklet	Question Paper 2

**Time Allowed:** 66 minutes

**Score:** /55

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1 The cost of making a chair is \$28 correct to the nearest dollar.

Calculate the lower and upper bounds for the cost of making 450 chairs.

*Answer* lower bound \$ .....

upper bound \$ ..... [2]

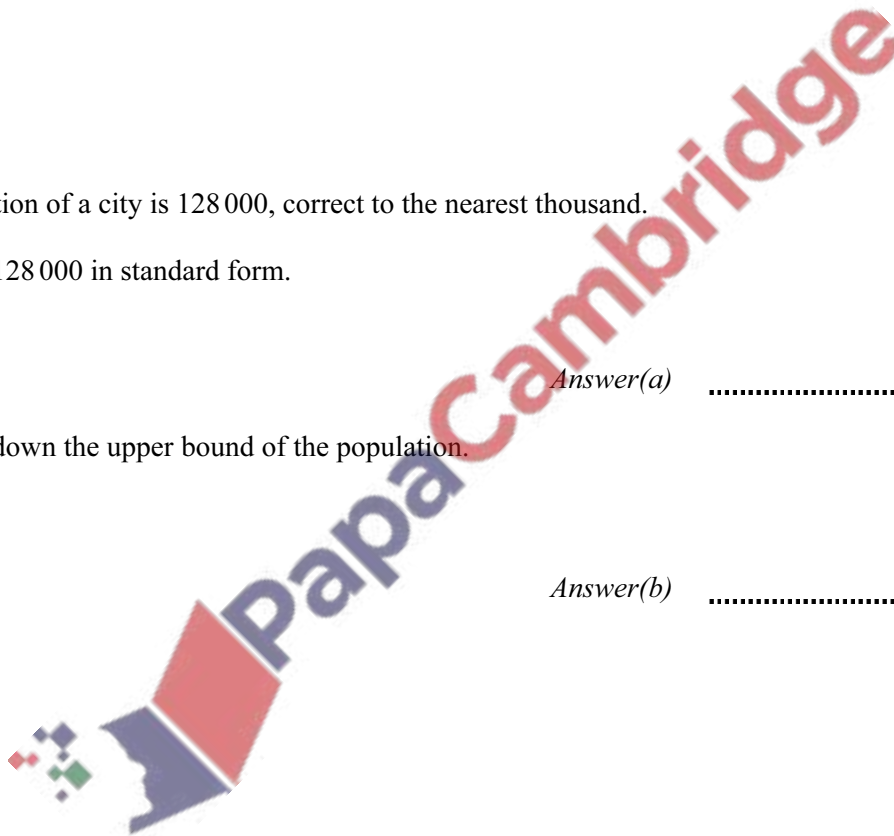
2 The population of a city is 128 000, correct to the nearest thousand.

(a) Write 128 000 in standard form.

*Answer(a)* ..... [1]

(b) Write down the upper bound of the population.

*Answer(b)* ..... [1]



3 A rectangular photograph measures 23.3 cm by 19.7 cm, each correct to 1 decimal place.  
Calculate the lower bound for

(a) the perimeter,

Answer(a) ..... cm [2]

(b) the area.

Answer(b) ..... cm<sup>2</sup> [1]

4 Ashraf takes 1500 steps to walk  $d$  metres from his home to the station.  
Each step is 90 centimetres correct to the nearest 10 cm.

Find the lower bound and the upper bound for  $d$ .

Answer .....  $\leq d <$  ..... [3]

- 5 Helen measures a rectangular sheet of paper as 197 mm by 210 mm, each correct to the nearest millimetre.  
Calculate the upper bound for the perimeter of the sheet of paper.

*Answer* ..... mm [2]

- 6 The length of a side of a regular hexagon is 6.8 cm, correct to one decimal place.  
Find the smallest possible perimeter of the hexagon.

*Answer* ..... cm [2]

- 7 When a car wheel turns once, the car travels 120 cm, correct to the nearest centimetre.

Calculate the lower and upper bounds for the distance travelled by the car when the wheel turns 20 times.

*Answer* lower bound ..... cm

- 8 The side of a square is 6.3 cm, correct to the nearest millimetre.  
The lower bound of the perimeter of the square is  $u$  cm and the upper bound of the perimeter is  $v$  cm.  
Calculate the value of

(a)  $u$ ,

Answer(a)  $u =$  ..... [1]

(b)  $v - u$ .

Answer(b)  $v - u =$  ..... [1]

- 9 A fence is made from 32 identical pieces of wood, each of length 2 metres correct to the nearest centimetre.

Calculate the lower bound for the total length of the wood used to make this fence.

Write down your full calculator display.



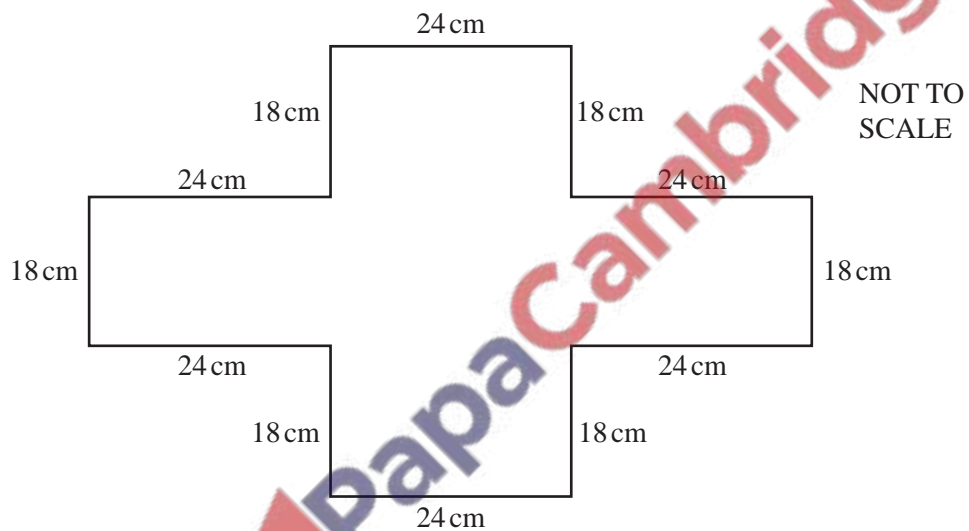
Answer ..... m [3]

10 The length of each side of an equilateral triangle is 74 mm, correct to the nearest millimetre.

Calculate the smallest possible perimeter of the triangle.

Answer ..... mm [2]

11



Each of the lengths 24 cm and 18 cm is measured correct to the nearest centimetre.  
Calculate the upper bound for the perimeter of the shape.

Answer ..... cm [3]

- 12 In 2005 there were 9 million bicycles in Beijing, correct to the nearest million.  
The average distance travelled by each bicycle in one day was 6.5 km correct to one decimal place.  
Work out the upper bound for the **total** distance travelled by all the bicycles in one day.

*Answer* ..... km [2]

- 13 A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.  
Calculate the upper bound for the area of the rectangle as accurately as possible.

*Answer* ..... cm<sup>2</sup> [2]

- 14 A rectangle has sides of length 6.1 cm and 8.1 cm correct to 1 decimal place.  
Complete the statement about the perimeter of the rectangle.

*Answer* ..... cm  $\leq$  perimeter < ..... cm [3]

- 15 Carmen spends 5 minutes, correct to the nearest minute, preparing one meal. She spends a total time of  $T$  minutes preparing 30 meals. Between what limits does  $T$  lie?

Answer .....  $\leq T <$  ..... [2]

- 16 Angharad sleeps for 8 hours each night, correct to the nearest 10 minutes. The total time she sleeps in the month of November (30 nights) is  $T$  hours. Between what limits does  $T$  lie?

Answer .....  $\leq T <$  ..... [2]

- 17 The distance between Singapore and Sydney is 6300 km correct to the nearest 100 km. A businessman travelled from Singapore to Sydney and then back to Singapore. He did this six times in a year. Between what limits is the total distance he travelled?

Answer ..... km  $\leq$  total distance travelled  $<$  ..... km [2]



18 To raise money for charity, Jalaj walks 22 km, correct to the nearest kilometre, every day for 5 days.

(a) Complete the statement in the answer space for the distance,  $d$  km, he walks in one day.

Answer (a) .....  $\leq d <$  ..... [2]

(b) He raises \$1.60 for every kilometre that he walks.

Calculate the least amount of money that he raises at the end of the 5 days.

Answer (b) \$ ..... [1]

19 A square has sides of length  $d$  metres.  
This length is 120 metres, correct to the nearest 10 metres.

(a) Complete the statement in the answer space.

Answer(a) .....  $\leq d <$  ..... [1]

(b) Calculate the difference between the largest and the smallest possible areas of the square.

Answer(b) ..... m<sup>2</sup> [2]

20 The population,  $P$ , of a small island was 6380, correct to the nearest 10.  
Complete the statement about the limits of  $P$ .

Answer .....  $\leq P <$  ..... [2]

- 21 (a) 32 493 people were at a football match  
Write this number to the nearest thousand.

Answer (a)..... [1]

- (b) At another match there were 25 500 people, to the nearest hundred.  
Complete the inequality about  $n$ , the number of people at this match.

Answer (b)..... $\leq n <$ .....[2]

- 22 A rectangular field is 18 metres long and 12 metres wide.  
Both measurements are correct to the nearest metre.  
Work out exactly the smallest possible area of the field.

Answer .....m<sup>2</sup> [2]



- 23 The length of a road is 380 m, correct to the nearest 10m .  
Maria runs along this road at an average speed of 3.9 m/s.  
This speed is correct to 1 decimal place.  
Calculate the greatest possible time taken by Maria.

Answer ..... s [3]

