Bounds

Question Paper 1

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Bounds
Booklet	Question Paper 1

Time Allowed: 60 minutes

Score: /50

Percentage: /100

Grade Boundaries:

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

1 The sides of an equilateral triangle are 9.4 cm, correct to the nearest millimetre.

Work out the upper bound of the perimeter of this triangle.

.... cm [2]

2 Write the recurring decimal $0.3\dot{6}$ as a fraction.
Give your answer in its simplest form.
$[0.3\dot{6}$ means $0.3666…]$

.... [3]

3 (a) $V = IR$

In an experiment I and R are both measured correct to 1 decimal place.

When $I = 4.0$ and $R = 2.7$, find the **lower** bound for V.

.... [2]

(b) $S = \dfrac{D}{T}$

In an experiment D and T are both measured correct to 2 significant figures.

When $D = 7.6$ and $T = 0.23$, find the **upper** bound for S.

[2]

4 A metal pole is 500 cm long, correct to the nearest centimetre.
The pole is cut into rods each of length 5.8 cm, correct to the nearest millimetre.

Calculate the largest number of rods that the pole can be cut into.

.... [3]

5 Rice is sold in 75 gram packs and 120 gram packs.
The masses of both packs are given correct to the nearest gram.

Calculate the lower bound for the difference in mass between the two packs.

Answer .... g [2]

6 One year ago Ahmed's height was 114 cm.

Today his height is 120 cm.
Both measurements are correct to the nearest centimetre.

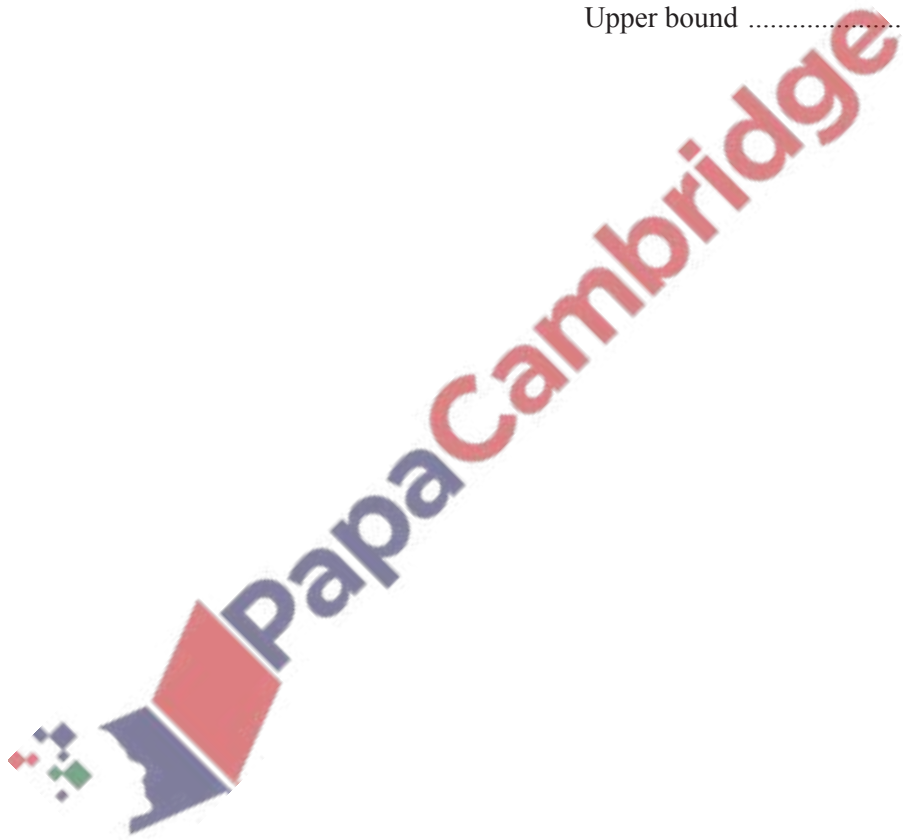Work out the upper bound for the increase in Ahmed's height.

Answer .... cm [2]

7 A rectangle has length 5.8 cm and width 2.4 cm, both correct to 1 decimal place.

Calculate the lower bound and the upper bound of the perimeter of this rectangle.
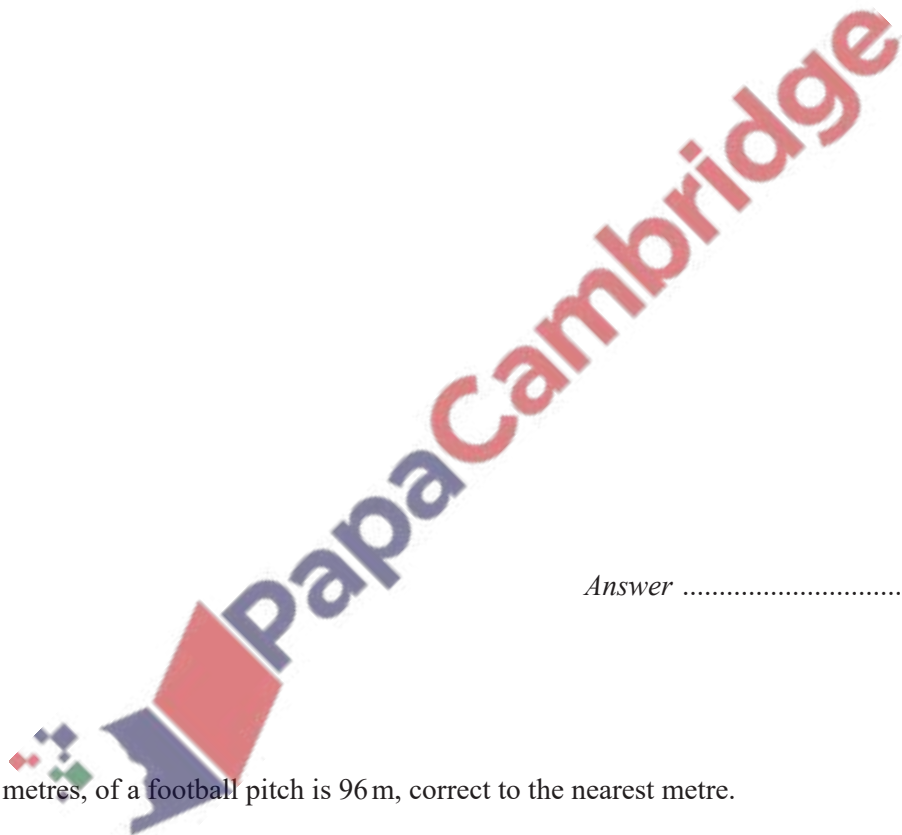
Answer Lower bound .... cm

Upper bound .... cm [3]

8 The volume of a cuboid is $878\,\text{cm}^3$, correct to the nearest cubic centimetre.

The length of the base of the cuboid is $7\,\text{cm}$, correct to the nearest centimetre.
The width of the base of the cuboid is $6\,\text{cm}$, correct to the nearest centimetre.

Calculate the lower bound for the height of the cuboid.

Answer .... cm [3]

_ 9 The length, l metres, of a football pitch is $96\,\text{m}$, correct to the nearest metre.

Complete the statement about the length of this football pitch.

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

10 The mass of $1\,\text{cm}^3$ of copper is 8.5 grams, correct to 1 decimal place.

Complete the statement about the total mass, T grams, of $12\,\text{cm}^3$ of copper.

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

11 A rectangle has length 127.3 cm and width 86.5 cm, both correct to 1 decimal place.

Calculate the upper bound and the lower bound for the perimeter of the rectangle.

Answer Upper bound = ... cm

Lower bound = ... cm [3]

12 The length, p cm, of a car is 440 cm, correct to the nearest 10 cm.

Complete the statement about p.

Answer .... $\leqslant p <$ .... [2]

Answer $v =$ .... [3]

13 A circle has a radius of 8.5 cm correct to the nearest 0.1 cm.

The lower bound for the area of the circle is $p\pi$ cm^2.
The upper bound for the area of the circle is $q\pi$ cm^2.

Find the value of p and the value of q.

Answer $p =$ ....

$q =$ .... [3]

14 An equilateral triangle has sides of length 16.1 cm, correct to the nearest millimetre.

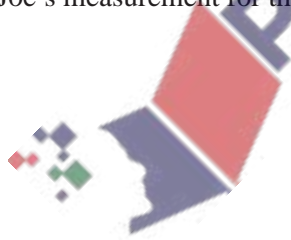Find the lower and upper bounds of the perimeter of the triangle.

Answer Lower bound = ... cm

Upper bound = ... cm [2]

15 Joe measures the side of a square correct to 1 decimal place.

He calculates the **upper** bound for the area of the square as 37.8225 cm^2.

Work out Joe's measurement for the side of the square.

Answer .... cm [2]

16 A large water bottle holds 25 litres of water correct to the nearest litre.
A drinking glass holds 0.3 litres correct to the nearest 0.1 litre.

Calculate the lower bound for the number of glasses of water which can be filled from the bottle.

Answer .... [3]

17 The number of spectators at the 2010 World Cup match between Argentina and Mexico was 82 000 correct to the nearest thousand.
If each spectator paid 2600 Rand (R) to attend the game, what is the lower bound for the total amount paid?
Write your answer in standard form.
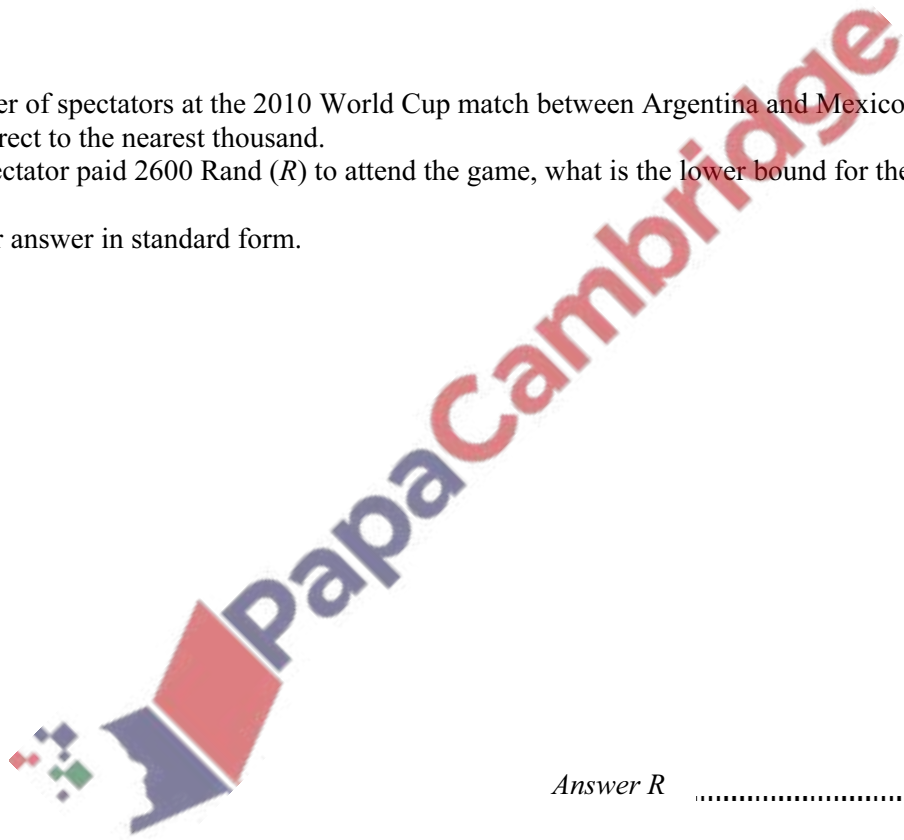
Answer R .... [3]

18 A carton contains 250 ml of juice, correct to the nearest millilitre.

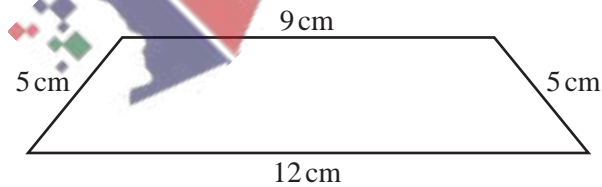Complete the statement about the amount of juice, j ml, in the carton.

Answer .... $\leqslant j <$ .... [2]

19 The sides of a rectangle are 6.3 cm and 4.8 cm, each correct to 1 decimal place.

Calculate the upper bound for the area of the rectangle.

Answer .... cm^2 [2]

20

The diagram shows a quadrilateral.
The lengths of the sides are given to the nearest centimetre.

Calculate the upper bound of the perimeter of the quadrilateral.

Answer .... cm [2]