MEGA LECTURE

Bounds

Question Paper 3

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Bounds
Booklet	Question Paper 3

Time Allowed: 27 minutes

Score: /22

Percentage: /100

Grade Boundaries:

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

1 **(a** In Portugal, Miguel buys a book about planets.
The book costs €34.95.
In England the same book costs £27.50.
The exchange rate is £1 = €1.17.

Calculate the difference in pounds (£) between the cost of the book in Portugal and England.

Answer(a) £ .... [2]

(b) In the book, the distance between two planets is given as 4.07×10^{12} kilometres.
The speed of light is 1.1×10^{9} kilometres per hour.

Calculate the time taken for light to travel from one of these planets to the other.
Give your answer in days and hours.

Answer(b) .... days .... hours [3]

(c) In one of the pictures in the book, a rectangle is drawn.
The rectangle has length 9.3 cm and width 5.6 cm, both correct to one decimal place.

(i) What is the lower bound for the length?

Answer(c)(i) .... cm [1]

(ii) Work out the lower and upper bounds for the area of the rectangle.

Answer(c)(ii) Lower bound = ... cm^2

Upper bound = ... cm^2 [2]

2 **(a** $72 = 2 \times 2 \times 2 \times 3 \times 3$ written as a product of prime factors.

   (i) Write the number 126 as a product of prime factors.

Answer(a)(i) 126 = ... [2]

   (ii) Find the value of the highest common factor of 72 and 126.

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

   (iii) Find the value of the lowest common multiple of 72 and 126.

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

(b) John wants to estimate the value of π.
He measures the circumference of a circular pizza as 105 cm and its diameter as 34 cm, both correct to the nearest centimetre.

Calculate the lower bound of his estimate of the value of π.
Give your answer correct to 3 decimal places.

Answer(b) .... [4]

(c) The volume of a cylindrical can is $550 \, cm^3$, correct to the nearest $10 \, cm^3$.
The height of the can is 12 cm correct to the nearest centimetre.

Calculate the upper bound of the radius of the can.
Give your answer correct to 3 decimal places.

Answer(c) .... cm [5]