Integers, HCF/LCM, Prime numbers, Sig Figs, Dec Places

Question Paper 2

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Integers, HCF/LCM, Prime numbers, Sig Figs, Dec Places
Booklet	Question Paper 2

Time Allowed: **70 minutes**

Score: **/58**

Percentage: **/100**

Grade Boundaries:

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

MEGA LECTURE

1   210 2 212 213 214 215 216

From the list of numbers, find

(a) a prime number,

Answer(a) .... [1]

(b) a cube number.

Answer(b) .... [1]

MEGA LECTURE

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 $550\,\text{cm}^3$, correct to the nearest $10\,\text{cm}^3$.
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]

MEGA LECTURE

www.youtube.com/megalecture

3   Which of the following numbers are irrational?

$$\frac{2}{3} \qquad \sqrt{36} \qquad \sqrt{3} + \sqrt{6} \qquad \pi \qquad 0.75 \qquad 48\% \qquad 8^{\frac{1}{3}}$$

Answer   .... [2]

4 **(a)** Work out the following.

    (i) $\dfrac{1}{0.2^2}$

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

    (ii) $\sqrt{5.1^2 + 4 \times 7.3^2}$

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

    (iii) $25^{\frac{1}{2}} \times 1000^{-\frac{2}{3}}$

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

(b) Mia invests $7500 at 3.5% per year **simple** interest.
    Calculate the total amount she has after 5 years.

                                                          Answer(b) $ .... [3]

(c) Written as the product of prime factors $48 = 2^4 \times 3$.

    (i) Write 60 as the product of prime factors.

                                                          Answer(c)(i) .... [2]

    (ii) Work out the highest common factor (HCF) of 48 and 60.

                                                          Answer(c)(ii) .... [2]

    (iii) Work out the lowest common multiple (LCM) of 48 and 60.

                                                          .... [2]

MEGA LECTURE

5   Write 0.00658

   (a) in standard form,

                                        Answer(a) .... [1]

   (b) correct to 2 significant figures.

                                        Answer(b) .... [1]

6   p is the largest prime number between 50 and 100.
   q is the smallest prime number between 50 and 100.

   Calculate the value of $p - q$.

                                        Answer .... [2]

7   Write down the next two prime numbers after 43.

                              Answer .... and .... [2]

8   Write down the next two prime numbers after 47.

                              Answer .... and .... [2]

9   Write the number 1045.2781 correct to

(a) 2 decimal places,

Answer(a) .... [1]

(b) 2 significant figures.

Answer(b) .... [1]

10   Write down

(a) an irrational number,

Answer(a) .... [1]

(b) a prime number between 60 and 70.

Answer(b) .... [1]

11   Write down the next prime number after 89.

Answer .... [1]

MEGA LECTURE

12   The table gives the average surface temperature (°C) on the following planets.

Planet	Earth	Me				
Average temperature	15	350	−220	−240	−180	−200

(a) Calculate the range of these temperatures.

Answer(a) .... °C [1]

(b) Which planet has a temperature 20 °C lower than that of Uranus?

Answer(b) .... [1]

13   Write the number 2381.597 correct to

(a) 3 significant figures,

Answer(a) .... [1]

(b) 2 decimal places,

Answer(b) .... [1]

(c) the nearest hundred.

Answer(c) .... [1]

14   From the list of numbers $\dfrac{22}{7}$, π , $\sqrt{14}$, $\sqrt{16}$, 27.4, $\dfrac{65}{13}$ write down

(a) one integer,

Answer(a) .... [1]

(b) one irrational number.

Answer(b) .... [1]

15 The area of a small country is 78 133 square kilometres.

(a) Write this area correct to 1 significant figure.

Answer(a) .... km² [1]

(b) Write your answer to **part (a)** in standard form.

Answer(b) .... km² [1]

16 The altitude of Death Valley is −86 metres.
The altitude of Mount Whitney is 4418 metres.
Calculate the difference between these two altitudes.

Answer .... m [1]

17 $\mathscr{E} = \{-2, \frac{1}{2}-1, \sqrt{2}, \overline{3.5}, \sqrt{30}, \sqrt{36}\}$
$X = \{\text{integers}\}$
$Y = \{\text{irrational numbers}\}$
List the members of

(a) X,

Answer (a) $X = \{$ ....$\}$ [1]

(b) Y.

Answer (b) $Y = \{$ ....$\}$ [1]

MEGA LECTURE

18   The table shows the maximum daily temperatures during one week in Punta Arenas.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2°C	3°C	1°C	2.5°C	−1.5°C	1°C	2°C

(a) By how many degrees did the maximum temperature change between Thursday and Friday?

Answer (a) ....   [1]

(b) What is the difference between the greatest and the least of these temperatures?

Answer (b) ....   [1]

MEGA LECTURE