MEGA LECTURE

Standard Form

Question Paper 2

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

Time Allowed: 42 minutes

Score: /35

Percentage: /100

Grade Boundaries:

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

1   A light on a computer comes on for 26 700 microseconds.

One microsecond is 10^{-6} seconds.

Work out the length of time, in seconds, that the light is on

(a) in standard form,

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

(b) as a decimal.

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

2   Use the formula

$$P = \frac{V^2}{R}$$

to calculate the value of *P* when $V = 6 \times 10^6$ and $R = 7.2 \times 10^8$.

Answer P = ... [2]

3   The planet Neptune is 4 496 000 000 kilometres from the Sun.
Write this distance in standard form.

Answer .... km [1]

4   The mass of the Earth is $\dfrac{1}{95}$ of the mass of the planet Saturn.

The mass of the Earth is 5.97×10^{24} kilograms.
Calculate the mass of the planet Saturn, giving your answer in standard form, correct to 2 significant figures.

Answer .... kg [3]

5   A block of cheese, of mass 8 kilograms, is cut by a machine into 500 equal slices.

   (a) Calculate the mass of one slice of cheese in kilograms.

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

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

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

6 (a) Use your calculator to find the value of $7.5^{-0.4} \div 57 . \sqrt{}$

Write down your full calculator display.

Answer(a) .... [1]

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

Answer(b) .... [1]

7 Noma flies from Johannesburg to Hong Kong.
Her plane leaves Johannesburg at 1845 and arrives in Hong Kong 13 hours and 25 minutes later.
The local time in Hong Kong is 6 hours ahead of the time in Johannesburg.

(a) At what time does Noma arrive in Hong Kong?

Answer(a) .... [2]

(b) Noma sleeps for part of the journey.
The time that she spends sleeping is given by the ratio

$$\text{sleeping} : \text{awake} = 3 : 4$$

Calculate how long Noma sleeps during the journey.
Give your answer in hours and minutes.

Answer(b) .... h .... min [2]

(c) The distance from Hong Kong to Johannesburg is 10 712 km.
The time taken for the journey is 13 hours and 25 minutes.

Calculate the average speed of the plane for this journey.

Answer(c)(i) .... km/h [2]

(ii) The plane uses fuel at the rate of 1 litre for every 59 metres travelled.

Calculate the number of litres of fuel used for the journey from Johannesburg to Hong Kong.
Give your answer in standard form.

Answer(c)(ii) .... litres [4]

(d) The cost of Noma's journey is 10 148 South African Rand (R).
This is an increase of 18% on the cost of the journey one year ago.

Calculate the cost of the same journey one year ago.

Answer(d) R .... [3]

8

$$w = \frac{1}{\sqrt{LC}}$$

(a) Find w when $L = 8 \times 10^{-3}$ and $C = 2 \times 10^{-9}$.
Give your answer in standard form.

Answer(a) w = ... [3]

(b) Rearrange the formula to make C the subject.

Answer(b) C = ... [3]

9 Write 0.00658

(a) in standard form,

Answer(a) .... [1]

(b) correct to 2 significant figures.

Answer(b) .... [1]

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

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

Answer(a) .... km^2 [1]

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

Answer(b) .... km^2 [1]