Name: _____

GCSE (1 – 9)

Standard Form

Instructions

- Use **black** ink or ball-point pen.
- Answer all Questions.
- Answer the Questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each Question are shown in brackets
– *use this as a guide as to how much time to spend on each Question.*

Advice

- Read each Question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every Question.
- Check your answers if you have time at the end

1 (a) Write 1.2×10^5 as an ordinary number.

.....

(1)

(b) Write 0.003 in standard form.

.....

(1)

(Total for Question 1 is 2 marks)

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2 (a) Write 42 900 000 in standard form.

.....

(1)

(b) Write 3.61×10^{-3} as an ordinary number.

.....

(1)

(Total for Question 2 is 2 marks)

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3 (a) Write 9.516×10^6 as an ordinary number.

.....

(1)

(b) Write 0.0724 in standard form.

.....

(1)

(c) Calculate $(8.694 \times 10^2) \div (6.21 \times 10^{-3})$
Give your answer in standard form.

.....

(2)

(Total for Question 3 is 4 marks)

4 (a) Write 5.12×10^{-5} as an ordinary number.

.....

(1)

(b) Write 5 600 000 in standard form.

.....

(1)

(Total for Question 4 is 2 marks)

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5 (a) Write 0.0065 in standard form.

.....

(1)

(b) Write 3×10^{4} as an ordinary number.

.....

(1)

(Total for Question 5 is 2 marks)

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6 (a) Write 3.08×10^{-5} as an ordinary number.

.....

(1)

(b) Write 5 million in standard form.

.....

(1)

(c) Calculate $(6.3 \times 10^{5}) \times (2.5 \times 10^{-2})$
Give your answer in standard form.

.....

(2)

(Total for Question 6 is 4 marks)

7 Work out $(8.69 \times 10^{-5}) \div (5.5 \times 10^{-7})$
Give your answer in standard form.

.....

(Total for Question 7 is 2 marks)

8 (a) Write 0.00931 in standard form.

.....

(1)

(b) Write 7.429×10^{3} as an ordinary number.

.....

(1)

(Total for Question 8 is 2 marks)

9 (a) Write 5.2×10^{-1} as an ordinary number.

.....

(1)

(b) Work out the value of $(3.2 \times 10^{3}) \times (6.5 \times 10^{4})$
Give your answer in standard form.

.....

(2)

(Total for Question 9 is 3 marks)

10 Write 0.21×10^{6} in standard form.

.....

(Total for Question 10 is 1 mark)

11 Work out $(6.7 \times 10^4) \times (3.4 \times 10^{-8})$
Give your answer as an ordinary number.

(Total for Question 11 is 2 marks)

12 Work out $\dfrac{0.03 \times 0.02}{0.008}$

Give your answer in standard form.

(Total for Question 12 is 3 marks)

13 Work out $\dfrac{3.744 \times 10^9}{2.4 \times 10^5}$

Give your answer in standard form.

(Total for Question 13 is 2 marks)

14 Work out the value of $(5 \times 10^3) \times (6 \times 10^7)$
Give your answer in standard form.

(Total for Question 14 is 2 marks)

15 (a) Write 0.000 054 376 in standard form.

(b) Write 4.15×10^6 as an ordinary number.

(1)

(c) Work out $\dfrac{4.1\times10^5 \times 7.3\times10^4}{2\times10^{-6}}$

(1)

(2)

(Total for Question 15 is 4 marks)

16 Write these numbers in order of size.
Start with the smallest number.

6.1×10^2 0.061×10^2 6100×10^{-4} 61

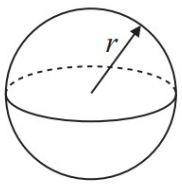
(Total for Question 16 is 2 marks)

17 A sphere has a radius of 6.4×10^6 metres.
Calculate the volume of this sphere.

Give your answer in standard form to 1 decimal place.

Volume of sphere $= \frac{4}{3}\pi r^3$

Surface area of sphere $= 4\pi r^2$



(Total for Question 17 is 3 marks)

18 A large rock has a weight of 1.2×10^4 grams.

Find, in standard form, the weight of 12 of these large rocks.

..... grams

(Total for Question 18 is 2 marks)

19 Write these numbers in order of size.
Start with the smallest number.

3.5×10^2 0.035×10^5 350×10^{-2} 35×10^0

.....

(Total for Question 19 is 2 marks)

20 The diameter of Neptune is 5.0×10^4 km
The diameter of Mars is 6.8×10^3 km
Calculate the difference between the diameter of Neptune and the diameter of Mars.
Give your answer in standard form.

..... km

(Total for Question 20 is 2 marks)

21 One electron has a mass of 9.1×10^{-31} grams.

Find the mass of 250 of electrons.

..... grams

(Total for Question 21 is 2 marks)

22 The area of Australia is 7.7×10^6 km^2
The area of Cyprus is 9.3×10^3 km^2
How many times larger is Australia than Cyprus.
Give your answer to the nearest whole number.

.....

(Total for Question 22 is 2 marks)

23 The area of the Pacific Ocean is 3.61×10^8 km^2
The area of the Atlantic Ocean is 8.51×10^7 km^2
Find the total area of the Pacific Ocean and the Atlantic Ocean.
Give your answer in standard form.

..... km^2

(Total for Question 23 is 2 marks)

24 The distance between Earth and Mars is 78 million kilometres.
The speed of light is 3×10^5 km/s

Calculate the time, in seconds, it takes for light to travel from Earth to Mars.
Give your answer in standard form.

..... s

(Total for Question 24 is 2 marks)