Powers, Roots & Standard Form

Question Paper

Course	Edexcel IGCSE Maths
Section	1. Numbers & the Number System
Topic	Powers, Roots & Standard Form
Difficulty	Easy

Time allowed: 50

Score: /38

Percentage: /100

Question 1

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

5^{-1} 0.5 -5 5^{0}

[2 marks]

Question 2

Show that $125^{\frac{2}{3}}$ is the same as 25

[1 mark]

Question 3

Show that 3^{-2} is equal to $\frac{1}{9}$

[1 mark]

Question 4a

Write 7.8×10^{-4} as an ordinary number.

[1 mark]

Question 4b

Write $95\ 600\ 000$ as a number in standard form.

[1 mark]

Question 5

Work out the value of $(7.5 \times 10^4) \times (2.5 \times 10^3)$
Give your answer in standard form.

[2 marks]

Question 6

Write 0.000068 in standard form.

[1 mark]

Question 7a

Write 0.000423 in standard form.

[1 mark]

Question 7b

Write 4.5×10^4 as an ordinary number.

[1 mark]

Question 8a

Write 0.00562 in standard form.

[1 mark]

Question 8b

Write 1.452×10^3 as an ordinary number.

[1 mark]

Question 9

Write down the reciprocal of 5.

[1 mark]

Question 10

Write $5^{17} \times 5^{2}$ as a single power of 5

[1 mark]

Question 11a

Write down the value of m, given that $3^{4} \times 3^{5} = 3^{m}$

$m =$ .....

[1 mark]

Question 11b

Write down the value of n, given that $(5^{3})^{7} = 5^{n}$

$n =$ .....

[1 mark]

Question 11c

Find the value of p, given that $\frac{7^{8} \times 7^{2}}{7^{p}} = 7^{6}$

$p =$ .....

[2 marks]

Question 12a

Write 2.46×10^6 as an ordinary number.

[1 mark]

Question 12b

Write $0.000\ 74$ in standard form.

[1 mark]

Question 13

Circle the number that is written in standard form.

0.9×10^{-3} $6 \times 10^{0.5}$ 5.2×10^{-4} 12×10^{7}

[1 mark]

Question 14

Circle the expression that has the **largest** value when $a < -1$

$\frac{1}{2}a$ a a^2 a^3

[1 mark]

Question 15a

Write these numbers in standard form.

i)
6500

[1]

ii)
0.0584

[1]

[2 marks]

Question 15b

Work out $(4.2 \times 10^5) \times (1.8 \times 10^{-2})$ giving your answer in standard form.

[1 mark]

Question 16a

A grain of salt weighs 6.48×10^{-5} kg on average.

A packet contains 0.35 kg of salt.

Use this information to calculate the number of grains of salt in the packet.

[2 marks]

Question 16b

Explain why your answer to part (a) is unlikely to be the actual number of grains of salt in the packet.

[1 mark]

Question 17

Tom researches the weights of plant seeds.

- One poppy seed weighs 3×10^{-4} grams
- 250 pumpkin seeds weigh 21 grams.
- One sesame seed weighs 3.64×10^{-6} kilograms.

Write the three types of seed in order according to the weight of one seed.
Write the lightest type of seed first.
You must show how you decide.

[4 marks]

Question 18

A newborn baby has an approximate mass of 3.5 kilograms.

A human cell has an approximate mass of 2.7×10^{-11} grams.

Use these values to estimate the number of human cells in a newborn baby.
Give your answer in standard form, correct to 2 significant figures.

[5 marks]