Lite GCSE Maths

Standard Form 1

Name:

Class:

Author:

Date:

Time: 29

Marks: 25

Comments:

Q1. You are given that

$c = 8.7 \times 10^8$ correct to two significant figures
and
$d = 1.3 \times 10^5$ correct to two significant figures.

max c 8.75×10^8

min d 1.25×10^5

Find the maximum value of $\frac{c}{d}$.

Give your answer as an ordinary number.

$\frac{8.75 \times 10^8}{1.25 \times 10^5} = 7 \times 10^3$

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Answer 7000

(Total 3 marks)

Q2. Terry has a bucket full of sand.
He wonders how many grains of sand it contains.
The empty bucket weighs 0.4 kg correct to one decimal place.

(a) What is the minimum possible weight of the empty bucket?

Answer 0.35 kg

(1)

(b) The bucket, full of sand, weighs 7.5 kg correct to one decimal place.
On average a grain of sand weighs 7×10^{-8} grams.

What is the maximum possible number of grains of sand in the bucket?
Give your answer in standard form to an appropriate degree of accuracy.

Max Bucket + Sand = 7.55 kg

Max Sand = 7.55 − 0.35 = 7.2 kg = 7200 g

$\frac{7200}{7 \times 10^{-8}} = 1.02857 \times 10^{11}$

Answer 1.0×10^{11}

or 1.03×10^{11}

(3)

(Total 4 marks)

Q3. For each calculation circle the answer that is correct **and** is in standard form.

(a) $(3 \times 10^{5}) \times (4 \times 10^{7})$

Answer

12×10^{12} 1.2×10^{36} 12×10^{35} 1.2×10^{13}

(1)

(b) $(4 \times 10^{-8}) \div (8 \times 10^{-2})$ $\frac{4 \times 10^{-8}}{8 \times 10^{-2}} = 0.5 \times 10^{-6} = 5 \times 10^{-7}$

Answer

0.5×10^{-6} 5×10^{4} 5×10^{-7} 5×10^{-5}

(1)
(Total 2 marks)

Q4. A company produces 35 million packets of crisps and snacks each week. Production is 7 days a week, 24 hours a day.

(a) On average, how many packets are produced in one day?
Give your answer in standard form.

$35\,000\,000 \div 7 = 5\,000\,000$

Answer 5×10^{6}

(2)

(b) Each packet makes an average profit of 12p.

Calculate the average hourly profit for this company. $\frac{5 \times 10^{6} \times 0.12}{24}$

Answer £ 25000

(2)
(Total 4 marks)

Q5. *x, y* and *z* are standard form numbers.

$x = 2.5 \times 10^5$ $y = 3.8 \times 10^4$ $z = 1.9 \times 10^6$

(a) Calculate $x - y$

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.....

Answer .....

(1)

(b) Calculate x^2

.....

.....

Answer .....

(1)

(c) Calculate $\frac{xy}{z}$

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Answer .....

(1)

(Total 3 marks)

Q6. A builder has 7200 kg of sand.

(a) Write 7200 kg in grams.
Give your answer in standard form.

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Answer ..... g

(2)

(b) One grain of this sand weighs 0.0006 g.
Write the weight of one grain of sand in standard form.

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Answer ..... g

(1)

(c) How many grains of sand are there in 7200 kg of sand?
Give your answer in standard form.

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Answer .....

(2)
(Total 5 marks)

Q7. Some large numbers are written below.

1 million = 10^6

1 billion = 10^9

1 trillion = 10^{12}

(a) How many millions are there in one trillion?

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Answer .....

(1)

(b) Write 8 billion in standard form.

.....

Answer .....

(1)

(c) Work out 8 billion multiplied by 3 trillion.
Give your answer in standard form.

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Answer .....

(2)
(Total 4 marks)