

Name:

Teacher
Assessment



Section A Understanding Standard Form Grade B

1. Write 98 million in standard form.

.....

Answer

(Total 1 mark)

2. Write seventy-one million eight hundred thousand in standard form.

.....

Answer

(Total 1 mark)

3. Write these numbers in standard form

(i) 9 170 000

.....

Answer

(1)

(ii) 0.000 048

.....

Answer

(1)

(Total 2 marks)

4. Some large numbers are written below.

$$1 \text{ million} = 10^6$$

$$1 \text{ billion} = 10^9$$

$$1 \text{ trillion} = 10^{12}$$

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

.....

.....

Answer

(1)

(b) Write 8 billion in standard form.

.....

Answer

(1) (Total 2 marks)

5. A builder has 7200 kg of sand.

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

.....
.....

Answer g

(2)

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

.....

Answer g

(1)

(Total 3 marks)

6. A calculator displays a number in standard form as



Which of the following numbers does the display show? Circle the correct answer.

7000 0.700 0.007 700 0.0007

(Total 1 mark)

7. Write 0.472 in standard form.

.....

Answer

(Total 1 mark)

8. Ten years ago, the population of the United Kingdom was 58 800 000.

Write this number in standard form.

.....

Answer

(Total 1 mark)

9. Write 0.000 002 4 in standard form.

.....

Answer

(Total 1 mark)

10. Write 0.000274 in standard form.

.....

.....

Answer

(Total 1 mark)

11. Write the number 0.00756 in standard form.

.....

Answer.....

(Total 1 mark)

12. (a) Write 7 billion as a number in standard form.

1 billion = 1000 million

.....

.....

Answer

(1)

- (b) Write the number 4.5×10^{-3} as an ordinary number.

.....

.....

Answer

(1)

(Total 2 marks)

13. Here are six numbers written in standard form.

2.6×10^5 1.75×10^6 5.84×10^0 8.2×10^{-3} 3.5×10^{-1} 4.9×10^{-2}

(a) Write down the largest number.

Answer (1)

(b) Write down the smallest number.

Answer (1)

(c) Write 4.9×10^{-2} as an ordinary number.

Answer (1)
(Total 3 marks)

14. The star Alpha Centauri is approximately 40 653 230 000 000 kilometres from Earth.
Write this number in standard form to 3 significant figures.

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.....

Answer (Total 2 marks)

Success:

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Section B **+ - × ÷ Using Standard Form** **Grade B / A**

1. (a) Work out $4 \times 10^7 \times 3 \times 10^4$. Give your answer in standard form.

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.....
.....
.....

Answer

(2)

(b) Work out $\frac{4 \times 10^9}{8 \times 10^5}$. Give your answer in standard form.

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.....
.....
.....

Answer

(3)

(Total 5 marks)

2. (a) Work out $(3 \times 10^2) \times (4 \times 10^5)$. Give your answer in standard form.

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.....
.....

Answer.....

(2)

(b) Workout $(3 \times 10^2) \div (4 \times 10^5)$ Give your answer in standard form.

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.....
.....

Answer.....

(2)

(Total 4 marks)

3. (a) Work out $5 \times 10^4 \times 8 \times 10^6$. Give your answer in standard form.

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.....

Answer

(2)

(b) Work out $\frac{2 \times 10^4}{8 \times 10^6}$. Give your answer in standard form.

.....
.....

Answer

(3)

(Total 5 marks)

4. Evaluate $\frac{6 \times 10^7}{8 \times 10^{11}}$. Give your answer in standard form.

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.....
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Answer

(Total 2 marks)

5. (a) Multiply 2.3×10^5 by 5×10^7 . Give your answer in standard form.

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.....

Answer

(2)

(b) Divide 2.3×10^5 by 5×10^7 . Give your answer in standard form.

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.....

Answer

(2)

(Total 4 marks)

6. Work out $\frac{2.4 \times 10^6}{5 \times 10^4}$. Give your answer as an ordinary number.

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.....
.....

Answer

(Total 3 marks)

7. Find the value of $(1.8 \times 10^{12}) \div (2 \times 10^8)$

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.....
.....

Answer

(Total 2 marks)

8. Work out $2.6 \times 10^5 \div 0.1$. Give your answer in standard form.

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Answer

(Total 1 mark)

9. (a) Evaluate $500 \times 30 \times 10^8$. Give your answer in standard form.

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.....

Answer

(Total 2 marks)

10. (a) Work out $4 \times 10^8 \times 5 \times 10^{-6}$. Give your answer in standard form.

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.....

Answer

(2)

- (b) Work out $\frac{4 \times 10^8}{5 \times 10^{-6}}$. Give your answer in standard form.

.....
.....

Answer

(3)
(Total 5 marks)

11. Calculate 15% of 3×10^7 . Give your answer in standard form.

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.....
.....
.....

Answer

(Total 2 marks)

12. (a) Add 3.4×10^5 and 9.5×10^5 . Give your answer in standard form.

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.....
.....
.....

Answer

(2)

- (b) Multiply 4×10^8 and 1.6×10^{-5} . Give your answer in standard form.

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Answer

(2)
(Total 4 marks)

13. Work out $3.45 \times 10^4 - 8.2 \times 10^3$

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.....
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Answer

(Total 2 marks)

14. Work out $3.2 \times 10^5 - 2.89 \times 10^4$. Give your answer in standard form.

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Answer

(Total 3 marks)

15. Add together 5.1×10^7 and 3.89×10^6

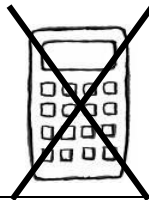
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Answer

(Total 2 marks)

Success:

Target:



Section C Problem Solving Using Standard Form Grade A

1. (a) The ratio 35 000 000 : 50 can be written in the form $n : 1$
Work out the value of n .
Give your answer in standard form.

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.....
.....
.....

Answer $n =$

(2)

- (b) Solve the equation $y \times 10^6 = 3.5 \times 10^3$
Give your answer in standard form.

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.....
.....

Answer $y =$

(2)

(Total 4 marks)

2. The table shows the populations of three European countries in 2002.

Country	Population
Germany	8.3×10^7
Switzerland	7.3×10^6
Italy	5.8×10^7

Work out the difference between the smallest and largest population.

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.....
.....
.....

Answer

(Total 2 marks)

3. The table gives the diameter, in metres, of planets in the solar system. The diameters are given to an accuracy of 3 significant figures.

Planet	Diameter (metres)
Mercury	4.88×10^6
Venus	1.21×10^7
Earth	1.28×10^7
Mars	6.79×10^6
Jupiter	1.43×10^8
Saturn	1.21×10^8
Uranus	5.11×10^7
Neptune	4.95×10^7
Pluto	2.39×10^6

(a) Which planet has the largest diameter?

Answer (1)

(b) Which planet has the smallest diameter?

Answer (1)

(c) Which planet has a diameter approximately 10 times that of Venus?

Answer (1)

(d) Write 4.88×10^6 as an ordinary number. Answer

(1)

(e) What is the diameter of Pluto in kilometres? Give your answer in standard form.

.....
.....
.....

Answer km
(2)(Total 6 marks)

4. In 2002 the number of visitors to four tourist attractions is shown in the table.

Blackpool Pleasure Beach	6.2 million
Edinburgh Castle	1 153 000
Giant's Causeway	4.07×10^5
Tate Modern	4.6 million

(a) Write the number of visitors to Edinburgh Castle in standard form.

Answer (1)

(b) Blackpool Pleasure Beach claimed that it had more visitors than the other three added together. Is this claim true? You **must** show your working.

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.....
.....

(2)(Total 3 marks)

5. The table shows the mass of 9 planets.

Planet	Mass of Planet (kg)
Mercury	3.3×10^{23}
Venus	4.9×10^{24}
Earth	6.0×10^{24}
Mars	6.4×10^{23}
Jupiter	1.9×10^{27}
Saturn	5.7×10^{26}
Uranus	8.7×10^{25}
Neptune	1.0×10^{26}
Pluto	1.5×10^{22}

(a) Which planet is the heaviest? Answer (1)

(b) Chris says that Earth is approximately 1.8 times as heavy as Mercury.

Is he correct? You **must** explain your answer .

.....
.....

(2)

(c) The population of the Earth is 6530 million.
Write 6530 million in standard form.

.....

Answer

(1)(Total 4 marks)

6. When two numbers are multiplied together the answer is 6.4×10^{15} One of the numbers is 8×10^9 Work out the other number. Give your answer in standard form.

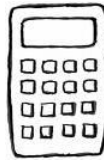
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Answer

(Total 3 marks)

Success:

Target:



Section D Standard Form Using a Calculator Grade B / A

1. Find the value of $(3.18 \times 10^5) \times (4.25 \times 10^3)$. Give your answer in standard form.

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Answer
(Total 2 marks)

2. Use your calculator to find the value of $(3.24 \times 10^{-2}) \div (2.4 \times 10^3)$.
Give your answer in standard form.

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Answer
(Total 2 marks)

3. Add together 5.1×10^7 and 3.89×10^6

.....
.....

Answer
(Total 2 marks)

4. Work out $3.2 \times 10^5 - 2.89 \times 10^4$
Give your answer in standard form.

.....
.....
.....
.....

Answer
(Total 3 marks)

Success:

Target: