Name:

Exam Style Questions

Standard Form

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorials

Videos 300 to 303

Answers and Video Solutions

1. (a) Write in standard form 35000

.....

(1)

(b) Write as an ordinary number 1.2×10^3

.....

(1)

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2. (a) Write in standard form 8200000

.....

(1)

(b) Write as an ordinary number 4.7×10^{-2}

.....

(1)

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3. Circle the number in standard form.

$5.55 + 10^{-8}$ 36×10^{-5} 0.3×10^5 6.5×10^8

(1)

4. Write the following numbers in standard form.

(a) 40000

.....

(1)

(b) 5600

.....

(1)

(c) 41200000

.....

(1)

(d) 0.00000008

.....

(1)

(e) 0.000345

.....

(1)

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5. Write 37341000000 in standard form.

.....

(1)

6. Nadal has been asked to write the number 48100000 in standard form.

He writes 481×10^5

Explain why Nadal is incorrect.

.....

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(1)

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7. Amelia has been asked to write the number 0.0054 in standard form.

She writes 5.4×10^3

Explain why Amelia is incorrect.

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(1)

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8. (a) Write 1.52×10^6 as an ordinary number

.....

(1)

(b) Write 9.8×10^{-5} as an ordinary number

.....

(1)

9. Write 0.000000000000412 in standard form.

.....

(1)

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10. Write 375×10^{6} in standard form.

.....

(1)

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11. Write 0.68×10^{12} in standard form.

.....

(1)

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12. Write 92×10^{-8} in standard form.

.....

(1)

13. Write these numbers in order of size, smallest to largest.

2.04×10^3 $\quad$ 250 $\quad$ 0.3×10^3 $\quad$ 4×10^{-2}

.....

(2)

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14. Calculate, writing your answer in standard form

$(2.05 \times 10^5) \times (8.17 \times 10^3)$

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(2)

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15. Work out, giving each answer in standard form.

(a) $(4 \times 10^5) \times (2 \times 10^4)$

.....

(2)

(b) $(5 \times 10^6) \times (7 \times 10^8)$

.....

(2)

16. Work out, giving each answer in standard form.

(a) $(3 \times 10^4) \div (6 \times 10^{-3})$

.....

(2)

(b) $(2.1 \times 10^{-5}) \div (7 \times 10^{-4})$

.....

(2)

(c) $(5 \times 10^4)^2$

.....

(2)

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17. (a) Write 0.0083 as an ordinary number.

.....

(1)

(b) Work out $\dfrac{2 \times 10^4}{5 \times 10^8}$

Give your answer in standard form.

.....

(2)

18. Work out $\dfrac{6.32 \times 10^{13}}{1.6 \times 10^{8}}$

Give your answer in standard form.

.....

(2)

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19. Mr. Holland has 2500kg of rice.

(a) Write 2500 kg in grams.
Give your answer in standard form.

.....g

(2)

(b) One grain of rice has a mass of 0.03g
Write the mass of one grain of rice in standard form.

.....g

(1)

(c) How many grains of rice are there in 2500kg of rice?
Give your answer in standard form.

.....

(2)

20. (a) Write five million in standard form.

.....

(1)

(b) Write three hundred thousand in standard form.

.....

(1)

(c) Work out five million multiplied by three hundred thousand.
Give your answer in standard form.

.....

(2)

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21. A calculator displays a number in standard form.

$$8.1 \times 10^{-5}$$

Write the number as an ordinary number.

.....

(1)

22. (a) Work out $(2.6 \times 10^6) + (7.1 \times 10^5)$

Give your answer in standard form.

.....

(3)

(b) Work out $(9.2 \times 10^5) - (8.3 \times 10^4)$

Give your answer in standard form.

.....

(3)

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23. Work out $\sqrt[3]{8 \times 10^{12}}$

.....

(2)

24. The number of visitors to some tourist attractions is shown in the table below.

The King's Palace	5.4 million
Castle	923,840
Theme Park	1.43×10^7
Science Museum	4,192,900

(a) Write the number of visitors to the Theme Park as an ordinary number.

.....

(1)

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

.....

(1)

(c) How many more people visited the Theme Park than the Science Museum?

.....

(2)

25. The number of loaves of bread baked each year by five companies is shown below.

Company	Number of loaves
Mavis	1.51×10^8
Norton's	1.6×10^5
Greenmill	2.53×10^6
Dan the Baker	4.02×10^6
Bread World	8.07×10^7

(a) Jenson says that Bread World baked approximately twice as many loaves as Dan the Baker.

Is Jenson correct? Explain why.

……

……

(2)

(b) Find the mean number of loaves of bread baked by the companies.

.....

(2)

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

Planet	Circumference (metres)
Mercury	1.54×10^7
Venus	3.81×10^7
Earth	4.01×10^7
Mars	2.13×10^7
Jupiter	4.39×10^8
Saturn	3.66×10^8
Uranus	1.59×10^8
Neptune	1.55×10^8

(a) Which planet has the largest circumference?

.....

(1)

(b) Which planet has the smallest circumference?

.....

(1)

(c) Write 1.54×10^7 as an ordinary number.

.....

(1)

(d) Work out the diameter of Neptune.
Give your answer in standard form.

.....

(2)

27. The distance of the moon to the Earth is 384,400 km.

The speed of light is 2.998×10^8 m/s

Work out how long it will take light to travel from the moon to the Earth.
Include suitable units.

.....

(3)

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28. a, b and c are standard form numbers.

$a = 5.4 \times 10^4$ $b = 4.9 \times 10^5$ $c = 4 \times 10^6$

(a) Calculate b – a

.....

(2)

(b) Calculate c^2

.....

(2)

(c) Calculate ac

.....

(2)

29. The population of England is 5.604×10^7

The number of people who live in London is 8.982×10^6

What percentage of the population of England live in London?
Give your answer to 2 decimal places.

.....

(2)

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30. Work out $(2.19 \times 10^8) \times (3.52 \times 10^3)$

Give your answer in standard form.

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(2)

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31. Work out $(4.5 \times 10^7) \div (5 \times 10^{-2})$

Give your answer in standard form.

.....

(2)

32. (a) Write 5930000000 in standard form.

.....

(1)

(b) Write 8.024×10^{-4} as an ordinary number.

.....

(1)

c, w and y are positive numbers.

c = 2×10^9 and y = 6×10^5

$$w^2 = \frac{cy}{c - y}$$

(c) Work out the value of w.
Give your answer in standard form correct to 2 significant figures.

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(3)

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33. Work out $(1.5 \times 10^6) + (5 \times 10^5) \times (3 \times 10^2)$

Give your answer in standard form.

.....

(3)

34. The Earth is approximately a sphere of diameter 12742 km.

The surface area of a sphere is given by the formula $A = 4\pi r^2$

Calculate the surface area of the Earth.
Give your answer in metres and in standard form.

.....m²

(4)