Standard Form

1 (a) Write 6.2×10^3 as an ordinary number.

6200
(1)

(b) Write the number 14000 in standard form.

1.4×10^4
(1)

(Total for Question 1 is 2 marks)

2 (a) Write 3.3×10^{-5} as an ordinary number.

0.000033
(1)

(b) Write the number 0.0004 in standard form.

4×10^{-4}
(1)

(Total for Question 2 is 2 marks)

3 (a) Write 9.3×10^{-4} as an ordinary number.

0.00093
(1)

(b) Write the number 65200 in standard form.

6.52×10^4
(1)

(Total for Question 3 is 2 marks)

For the entire booklet →

1

4 (a) Write 9.61×10^6 as an ordinary number.

9,610000
(1)

(b) Write the number 0.62 in standard form.

6.2×10^{-1}
(1)

(Total for Question 4 is 2 marks)

5 (a) Write 8×10^{-2} as an ordinary number.

0.08
(1)

(b) Write the number $770\,000$ in standard form.

7.7×10^5
(1)

(Total for Question 5 is 2 marks)

6 (a) Write 7.5×10^2 as an ordinary number.

750
(1)

(b) Write the number 0.0404 in standard form.

4.04×10^{-2}
(1)

(Total for Question 6 is 2 marks)

© 2024 1stclassmaths

7 (a) Write the number   five million   in standard form.

5 000 000

5×10^6

(1)

(b) Write the number   six thousand three hundred   in standard form.

6300

6.3×10^3

(1)

(Total for Question 7 is 2 marks)

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

6×10^4 6.7×10^2 9×10^3 9.5×10^{-1}

60000   670   9000   0.95

$9.5 \times 10^{-1}, 6.7 \times 10^2, 9 \times 10^3, 6 \times 10^4$

(Total for Question 8 is 2 marks)

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

4×10^{-1} 3×10^{-3} 5×10^2 5.1×10^{-4}

0.4   0.003   500   0.00051

$5.1 \times 10^{-4}, 3 \times 10^{-3}, 4 \times 10^{-1}, 3 \times 10^{-3}$

(Total for Question 9 is 2 marks)

1st

3

© 2024 1stclassmaths

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

$$5.5 \times 10^4 \qquad 55 \times 10^2 \qquad 550 \times 10^3 \qquad 0.55 \times 10^7$$

55000   5500   550000   5500000

$55 \times 10^2, 5.5 \times 10^4, 550 \times 10^3, 0.55 \times 10^7$

(Total for Question 10 is 2 marks)

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

$$0.099 \times 10^{-4} \qquad 0.99 \times 10^{-3} \qquad 9.9 \times 10^{-5} \qquad 990 \times 10^{-9}$$

0.0000099   0.00099   0.000099   0.00000099

$990 \times 10^{-9}, 0.099 \times 10^{-4}, 9.9 \times 10^{-5}, 0.99 \times 10^{-3}$

(Total for Question 11 is 2 marks)

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

$$3.1 \times 10^5 \qquad 3100 \times 10^{-1} \qquad 0.31 \times 10^5 \qquad 31 \times 10^2$$

310000   310   31000   3100

$3100 \times 10^{-1}, 31 \times 10^2, 0.31 \times 10^5, 3.1 \times 10^5$

(Total for Question 12 is 2 marks)

1st

4

13 The table shows some information about some planets.

Planet	Distance from Sun (miles)
Mercury	3.5×10^7
Earth	9.3×10^7
Jupiter	4.84×10^8
Saturn	9×10^8
Uranus	1.8×10^9

(a) Write the distance of Saturn from the sun as an ordinary number.

900,000,000 .... miles

(1)

(b) Mercury is 35 000 000 miles from the sun.

← 18×10^8

Uranus is twice as far from the sun as Saturn is.
Complete the table giving your answers in standard form.

(2)

Mars is 1.42×10^8 miles from the sun.

(c) Craig says

"Mars is closer to the sun than Earth is because 1.42 is less than 9.3".

Is Craig correct?
You must give a reason for your answer.

NO $1.42 \times 10^8 = 142 000 000$
$9.3 \times 10^7 = 93,000,000$
93000000 is smaller than 142,000,000

(1)

(Total for Question 13 is 4 marks)

14 (a) Suresh needs to write 32000 in standard form.

His answer is 32×10^3

Explain why Suresh's answer is incorrect.

32 is too big. It should be between
1 and 10 (but not 10 exactly)

(1)

(b) Lisa needs to write 0.068 in standard form.

Her answer is 6.8×10^2

Explain why Lisa's answer is incorrect.

It should be 6.8×10^{-2}
6.8×10^2 is 680 not 0.068

(1)

(Total for Question 14 is 2 marks)

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

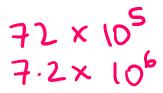15×10^{10}

1.5×10^{11}

(2)

(b) Work out $(7 \times 10^8) \div (2 \times 10^4)$
Give your answer in standard form.

3.5×10^4

(2)

(Total for Question 15 is 4 marks)

6

16 (a) Work out $(8 \times 10^8) \times (9 \times 10^{-3})$

Give your answer as an ordinary number.

72×10^5

7.2×10^6

....

7 200 000

(2)

(b) Work out $(9 \times 10^5) \div (3 \times 10^2)$

Give your answer as an ordinary number.

3×10^3

....

3000

(2)

(Total for Question 16 is 4 marks)

17 (a) Work out $(2 \times 10^{10}) \times (4.3 \times 10^4)$

Give your answer in standard form.

....

8.6×10^{14}

(2)

(b) Work out $(9 \times 10^5) \div (2 \times 10^{-2})$

Give your answer in standard form.

....

4.5×10^7

(2)

(Total for Question 17 is 4 marks)

7

18 (a) Work out $(5 \times 10^3)^2$

Give your answer in standard form.

$$25 \times 10^6$$

$$2.5 \times 10^7$$
(2)

(b) Work out $(3 \times 10^6) \div (6 \times 10^2)$

Give your answer in standard form.

$$0.5 \times 10^4$$

$$5 \times 10^3$$
(2)

(Total for Question 18 is 4 marks)

19 (a) Work out $(9 \times 10^{-3})^2$

Give your answer in standard form.

$$81 \times 10^{-6}$$

$$8.1 \times 10^{-5}$$
(2)

(b) Work out $\dfrac{2 \times 10^9}{8 \times 10^4}$

$$\frac{2}{8} = \frac{1}{4} = 0.25$$

Give your answer in standard form.

$$0.25 \times 10^5$$

$$2.5 \times 10^4$$
(2)

(Total for Question 19 is 4 marks)

8

20 (a) Work out $(3 \times 10^{10})^3$

Give your answer in standard form.

$$27 \times 10^{30}$$

$$2.7 \times 10^{31}$$
(2)

(b) Work out $(6 \times 10^4) \div (5 \times 10^{-3})$

Give your answer in standard form.

$$\frac{6}{5} = 1\frac{1}{5}$$

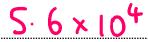$$= 1.2$$

$$1.2 \times 10^7$$
(2)

(Total for Question 20 is 4 marks)

21 (a) Work out $(5 \times 10^4) + (2.3 \times 10^2)$

Give your answer in standard form.

$$50000 + 230 = 50230$$

$$5.02 \times 10^4$$
(2)

(b) Work out $(6 \times 10^4) - (4 \times 10^3)$

Give your answer in standard form

$$60000 - 4000 = 56000$$

$$5.6 \times 10^4$$
(2)

(Total for Question 21 is 4 marks)

9

22 (a) Work out $(6.6 \times 10^2) + (1.5 \times 10^{-2})$
Give your answer as an ordinary number.

$$660 + 0.015$$
$$= 660.015$$

660.015
....
(2)

(b) Work out $(8.02 \times 10^5) - (1 \times 10^2)$
Give your answer as an ordinary number.

$$802000 - 100$$
$$= 801900$$

801900
....
(2)

(Total for Question 22 is 4 marks)

23 (a) Work out 30000×2300
Give your answer in standard form.

$$69000000$$

6.9×10^7
....
(2)

(b) Work out $600000 \div 5000$
Give your answer in standard form

$$\frac{600000}{5000} = \frac{600}{5}$$
$$= 120$$

1.2×10^2
....
(2)

(Total for Question 23 is 4 marks)

10

24 $a = 6.3 \times 10^4$
$b = 2.1 \times 10^2$

(a) Work out the value of $3a$
Give your answer in standard form.

18.9×10^4

$\underline{1.89 \times 10^5}$
(2)

(b) Work out the value of $\dfrac{a}{b}$

Give your answer in standard form.

$6.3 \div 2.1 = 3$

$\underline{3 \times 10^2}$
(2)

(c) Work out the value of $a + b$
Give your answer in standard form.

$63000 + 210$
$= 63210$

$\underline{6.321 \times 10^4}$
(2)

(d) Work out the value of b^2
Give your answer in standard form.

$$\begin{array}{r} 21 \\ 21 \\ \hline 21 \\ 420 \\ \hline 441 \end{array}$$

$2.1^2 = 4.41$

$\underline{4.41 \times 10^4}$
(3)

(Total for Question 24 is 9 marks)

1st

11

© 2024 1stclassmaths

Solutions

25 $4400 = 4.4 \times 10^n$ $n = 3$

(a) Write $4.4 \times 10^{(n+1)}$ as an ordinary number.

4.4×10^4

$\underline{\hspace{3cm} 44\,000 \hspace{3cm}}$
(1)

(b) Write 4.4×10^{-n} as an ordinary number.

4.4×10^{-3}

$\underline{\hspace{3cm} 0.0044 \hspace{3cm}}$
(1)

(c) Write 4.4×10^{2n} as an ordinary number.

4.4×10^6

$\underline{\hspace{3cm} 4\,400\,000 \hspace{3cm}}$
(1)

(Total for Question 25 is 3 marks)

26 Work out $\dfrac{(6 \times 10^6) \times (8 \times 10^3)}{(2 \times 10^3) - (8 \times 10^2)}$

Give your answer in standard form.

$$48 \times 10^9 = 4.8 \times 10^{10}$$
$$2000 - 800 = 1200 = 1.2 \times 10^3$$

$$\frac{4.8 \times 10^{10}}{1.2 \times 10^3} = 4 \times 10^7$$

$\underline{\hspace{3cm} 4 \times 10^7 \hspace{3cm}}$

(Total for Question 26 is 4 marks)

1st

12