Name:

Exam Style Questions

Standard Form

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 300
Video 301
Video 302
Video 303

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1. Write the following numbers in standard form.

(a) 40000

4×10^4

(1)

(b) 5600

5.6×10^3

(1)

(c) 41200000

4.12×10^7

(1)

(d) 0.00000008

8×10^{-8}

(1)

(e) 0.000345

3.45×10^{-4}

(1)

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2. Write 37341000000 in standard form.

3.7341×10^{10}

(1)

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3. Write 0.000000000000412 in standard form.

4.12×10^{-13}

(1)

4. Calculate, writing your answer in standard form

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

1.67485×10^9

(2)

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

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

8×10^9

(2)

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

35×10^{14}

3.5×10^{15}

(2)

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

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

0.5×10^7

5×10^6

5×10^6

(2)

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

0.3×10^{-1}

3×10^{-2}

3×10^{-2}

(2)

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

$5 \times 10^9 \times 5 \times 10^4$

25×10^8

2.5×10^9

(2)

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7. Mr Holland has 2500kg of rice.

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

2500000

2.5×10^6 .....g
(2)

(b) One grain of rice weighs 0.03g
Write the weight of one grain of rice in standard form.

3×10^{-2} .....g
(1)

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

$(2.5 \times 10^6) \div (3 \times 10^{-2})$

$8.33.. \times 10^7$ 8.33×10^7 .....
(2)

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

5000000

5×10^6

.....

(1)

(b) Write three hundred thousand in standard form.

300000

3×10^5

.....

(1)

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

15×10^{11}
1.5×10^{12}

1.5×10^{12}

.....

(2)

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9. A calculator displays a number in standard form.

Write the number as an ordinary number.

0.000081

0.000081

.....

(1)

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10. 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?

Jupiter

(1)

(b) Which planet has the smallest circumference?

Mercury

(1)

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

15400000

(1)

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

$d = c \div \pi$

$1.55 \times 10^8 \div \pi$

4.934×10^7

(2)

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11. 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.

14300000

(1)

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

9.2384×10^5

(1)

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

$$\begin{array}{r} 14300000 \\ -\ 4192900 \\ \hline 10107100 \end{array}$$

10,107,100

(2)

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12. 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.

$t = \frac{d}{s}$

$t = \frac{384400000}{2.998 \times 10^8} = 1.28$ seconds

.....

(3)

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12. 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

$490000 - 54000 = 436000$

4.36×10^5

.....

(2)

(b) Calculate c^2

$4 \times 10^6 \times 4 \times 10^6$

16×10^n

1.6×10^{13}

.....

(2)

(c) Calculate ac

$5.4 \times 10^4 \times 4 \times 10^6$

21.6×10^{10}

2.16×10^{11}

.....

(2)

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13. The population of England is 5.301×10^7
The number of people who live in London is 8.308×10^6

What percentage of the population of England live in London?

$\frac{8.308 \times 10^6}{5.301 \times 10^7} \times 100$

15.67%

(2)

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14. Find the value of $(2.19 \times 10^6) \times (3.52 \times 10^3)$.
Give your answer in standard form.

7.7088×10^{11}

(2)

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15. Work out $(4.5 \times 10^7) \div (5 \times 10^{-2})$
Give your answer in standard form.

0.9×10^9

9×10^8

(2)

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16. (a) Write 5930000000 in standard form.

5.93×10^9

(1)

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

0.0008024

(1)

(c) $c = 2 \times 10^6$ and $y = 6 \times 10^5$

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

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

$w^2 = \frac{12 \times 10^{11}}{1400000} = 857142.8571$

$w = 925.82...$
$w = 930$

9.3×10^2

(3)

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17. Work out $(1.52 \times 10^5) + (5.4 \times 10^4)$
Give your answer in standard form.

$$\begin{array}{r} 152000 \\ +\ 54000 \\ \hline 206000 \end{array}$$

2.06×10^5

(3)

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18. 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.

$d = 12742000m$

$r = 6371000m$

$SA = 4 \times \pi \times 6371000^2$

5.1×10^{14} .....m^3

(3)

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