

Standard Form Exam Practice



Q1. Write 530,000,000 in standard form.

$$5.3 \times 10^8$$

Answer: 5.3 × 10⁸
(1 mark)

Q2. Write 230500000 in standard form.

$$2.305 \times 10^8$$

Answer: 2.305 × 10⁸
(1 mark)

Q3. Write 0.007 in standard form.

$$7 \times 10^{-3}$$

Answer: 7 × 10⁻³
(1 mark)



Q4. Write 0.000802 in standard form.

$$8.02 \times 10^{-4}$$

Answer: 8.02×10^{-4}
(1 mark)

Q5. Write 5.2×10^4 as an ordinary number.

$$52000$$

Answer: 52,000
(1 mark)

Q6. Write 4.203×10^8 as an ordinary number.

$$420,300,000$$

Answer: 420,300,000
(1 mark)



Q7. Write 1.39×10^{-3} as an ordinary number.

$$0.00139$$

Answer: 0.00139
(1 mark)

Q8. Write 9.25×10^{-6} as an ordinary number.

$$0.00000925$$

Answer: 0.00000925
(1 mark)

Arithmetic using Standard Form:

Q9. Work out $(4 \times 10^3) \times (8 \times 10^2)$ giving your answer in standard form.

$$\begin{aligned} 4 \times 8 \times 10^3 \times 10^2 \\ 32 \times 10^5 \\ 3.2 \times 10^6 \end{aligned}$$

Answer: 3.2×10^6
(2 marks)



Q10. Work out $(2.8 \times 10^2) \times (8.9 \times 10^4)$ giving your answer in standard form.

$$2.8 \times 8.9 \times 10^2 \times 10^4$$

$$24.92 \times 10^6$$

$$2.492 \times 10^7$$

Answer: 2.492×10^7
(2 marks)

Q11. Work out $(4.6 \times 10^2) \times (5.0 \times 10^{-6})$ giving your answer in standard form.

$$23 \times 10^2 \times 10^{-6}$$

$$23 \times 10^{-4}$$

$$2.3 \times 10^{-3}$$

Answer: 2.3×10^{-3}
(2 marks)

Q12. Work out $(6 \times 10^5) \div (8 \times 10^2)$ giving your answer in standard form.

$$\frac{6 \times 10^5}{8 \times 10^2} = 0.75 \times 10^3$$

$$= 7.5 \times 10^2$$

Answer: 7.5×10^2
(2 marks)



Q13. Work out $(3.9 \times 10^2) \div (4.5 \times 10^{-3})$ giving your answer in standard form.

$$\frac{3.9 \times 10^2}{4.5 \times 10^{-3}} = 0.86 \times 10^5$$

Answer: 8.6×10^4
(2 marks)

Q14. Work out $(2 \times 10^3) + (1.8 \times 10^2)$ giving your answer in standard form.

$$\begin{aligned} 2000 + 180 &= 2180 \\ &= 2.18 \times 10^3 \end{aligned}$$

Answer: 2.18×10^3
(2 marks)

Q15. Work out $(3.2 \times 10^4) - (5.3 \times 10^3)$ giving your answer in standard form.

$$\begin{aligned} 32000 - 5300 &= 26700 \\ &= 2.67 \times 10^4 \end{aligned}$$

Answer: 2.67×10^4
(2 marks)



Q16. Work out $\frac{0.8 \times 0.4}{0.02}$ giving your answer in standard form.

$$\frac{0.32}{0.02} = \frac{32}{2} = 16 = 1.6 \times 10^1$$

Answer: 1.6×10^1
(2 marks)

Q17. Work out $\frac{2 \times 10^4 \times 3.2 \times 10^3}{4 \times 10^5}$ giving your answer in standard form.

$$\frac{6.4 \times 10^7}{4 \times 10^5} = 1.6 \times 10^2$$

Answer: 1.6×10^2
(2 marks)

Problem Questions

Q18. The side of a cube is 4×10^3 cm. Work out the volume of the cube, giving your answer in standard form.

$$\begin{aligned} \text{Volume} &= (4 \times 10^3)^3 \\ &= 4^3 \times 10^9 \\ &= 64 \times 10^9 \\ &= 6.4 \times 10^{10} \end{aligned}$$

Answer: $6.4 \times 10^{10} \text{ cm}^3$
(1 mark)



Q19. Put the following numbers in order starting with the largest.

$$0.52 \overset{\textcircled{1}}{\times} 10^2, \quad 0.00031 \overset{\textcircled{2}}{\times} 10^5, \quad 5300 \overset{\textcircled{4}}{\times} 10^{-3}, \quad 3 \overset{\textcircled{3}}{\times} 10^1$$

$$52, \quad 31, \quad 5.3, \quad 30$$

Answer: _____

(1 mark)

Q20. The volume of Pluto is $7 \times 10^9 \text{ km}^3$ and the volume of the sun is $1.4 \times 10^{18} \text{ km}^3$. Work out how many times Pluto could fit inside the sun, as an ordinary number, giving your answer in words.

$$\frac{1.4 \times 10^{18}}{7 \times 10^9} = 0.2 \times 10^9$$
$$= 200,000,000$$

two hundred million times

Answer: two hundred million

(2 marks)



Q21. Which of these is not a square number? Explain your choice.

36×10^2 , 49×10^6 , 81×10^3 , 400×10^8 , 25×10^6

$(6 \times 10)^2$, $(7 \times 10^3)^2$, $(9 \times 10^{1.5})^2$, $(20 \times 10^4)^2$, $(5 \times 10^3)^2$

∴
not square as $9 \times 10^{1.5}$ is not a whole number

Answer: 81×10^3
(2 marks)

Q22. The area of three islands A, B and C are shown below:

| | | |
|---|---------------------|---------------|
| A | 0.347×10^9 | km^2 |
| B | 135.8×10^6 | km^2 |
| C | 48009000 | km^2 |

Mike says that the total area of island A and island B is greater than the area of island C. Is he correct? You must explain your answer.

- Can convert each to standard form.
- Island C area: 4.8009000×10^8
- Island A area: 1.358×10^8
- Total of A, B: $1.358 \times 10^8 + 3.47 \times 10^8$
 $= 4.828 \times 10^8$, this is more than C.
So Mike is correct.

Answer: Correct
(2 marks)