Standard Form questions and answers

10 questions · Core · 7 non-calculator · worked answers

Name _____ Date _____ Score _____

- Original questions in the style of the Cambridge 0580 papers, each labelled Core or Extended and calculator or non-calculator. Try every question before you look at the answers.
- Worked answers start after the questions. Questions with marks come from our 0580 practice bank (M method, A accuracy, B independent marks).
- Online, with more practice: igcsemathrevision.com/igcse-frontend/0580/standard-form-questions

Core: for everyone (Papers 1 and 3, and Extended Papers 2 and 4)

1. **Core · non-calculator · easy**

Write in standard form

(a) $45\,000$

(b) 0.00072

2. **Core · non-calculator · easy**

Write 3.06×10^5 as an ordinary number.

3. **Core · non-calculator · easy · 2 marks**

Write these as ordinary numbers.

(a) 3.07×10^5 (b) 8×10^{-4}

4. **Core · calculator · easy · 2 marks**

Work out $(3.2 \times 10^4) \times (2.5 \times 10^3)$. Give your answer in standard form.

5. **Core · non-calculator · medium**

Calculate $(4 \times 10^5) \times (2.5 \times 10^3)$, writing the answer in standard form.

6. **Core · calculator · medium**

The mass of the Earth is 5.97×10^{24} kg. The mass of the Moon is 7.35×10^{22} kg.
How many times heavier is the Earth than the Moon? Give your answer correct to 3 significant figures.

7. **Core · non-calculator · medium**

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

8. **Core · non-calculator · medium · 2 marks**

Work out $(6 \times 10^8) \div (3 \times 10^{-2})$. Give your answer in standard form.

9. **Core · non-calculator · hard**

Work out $4.2 \times 10^5 + 3.8 \times 10^4$. Give your answer in standard form.

10. **Core · calculator · hard**

Light travels at 3.0×10^8 metres per second. The distance from the Sun to the Earth is 1.5×10^{11} metres.

How many minutes does light take to travel from the Sun to the Earth? Give your answer correct to 3 significant figures.

Answers and worked solutions

Question 1

Answer: (a) 4.5×10^{4} (b) 7.2×10^{-4}

1. (a) $45\,000 = 4.5 \times 10\,000 = 4.5 \times 10^{4}$
2. (b) Move the decimal point 4 places to get 7.2: 7.2×10^{-4}

Question 2

Answer: $306\,000$

1. Multiply 3.06 by $100\,000$: move the decimal point 5 places right.

Question 3 — 2 marks

Answer: (a) $307\,000$ (b) 0.0008

B1 (a) 307 000

B1 (b) 0.0008

Question 4 — 2 marks

Answer: 8×10^{7}

M1 8×10^{7} or 80 000 000 seen

A1 8×10^{7}

Question 5

Answer: 1×10^{9}

1. $4 \times 2.5 = 10$ and $10^{5} \times 10^{3} = 10^{8}$.
2. $10 \times 10^{8} = 1 \times 10^{9}$.

Question 6

Answer: 81.2

1. $\frac{5.97 \times 10^{24}}{7.35 \times 10^{22}} = 81.224\ldots$
2. Correct to 3 significant figures: 81.2.

Question 7

Answer: 2×10^{8}

1. $8 \div 4 = 2$ and $10^{6} \div 10^{-2} = 10^{6-(-2)} = 10^{8}$.

Question 8 — 2 marks

Answer: 2×10^{10}

M1 $6 \div 3 = 2$ and $10^{8} \div 10^{-2} = 10^{10}$

A1 2×10^{10}

Question 9

Answer: 4.58×10^{5}

1. $4.2 \times 10^{5} = 420\,000$ and $3.8 \times 10^{4} = 38\,000$.
2. $420\,000 + 38\,000 = 458\,000 = 4.58 \times 10^{5}$.

Question 10

Answer: 8.33 minutes

1. Time $= \frac{\text{distance}}{\text{speed}} = \frac{1.5 \times 10^{11}}{3.0 \times 10^{8}} = 500$ seconds.
2. $500 \div 60 = 8.333\ldots$ minutes.

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