Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Calculating in standard form

Time allowed: 30 minutes

Subject code **0580**

Mathematics

Questions from Paper 1, Paper 2 and Paper 4

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
You may use a calculator.

Total marks

/ 22

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

Information

- This paper has 10 questions worth 22 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

1 Calculate $(6.4\times10^{5})\div(2.5\times10^{-7})$.
Give your answer in standard form.

..... [1]

Calculating in standard form Click for more variations

1	2.56×10^{12}	**1**	

2 Work out $4\times10^{-5}\times6\times10^{12}$.
Give your answer in standard form.

Answer ..... [2]

Calculating in standard form Click for more variations

2	2.4×10^{8}	**2**	**B1** for 240 000 000 oe or **B1** for $k\times10^{8}$ or 2.4×10^{k}

3 Work out $(6.4\times10^{7})+(9.6\times10^{6})$.
Give your answer in standard form.

.....[2]

Calculating in standard form Click for more variations

3	7.36×10^{7}	**2**	**B1** for figs 736

4 Work out $2\times10^{100}-2\times10^{98}$, giving your answer in standard form.

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..... [2]

Calculating in standard form Click for more variations

4	1.98×10^{100}	**2**	**B1** for 200×10^{98} or 0.02×10^{100} or answer with figs 198

5 Calculate $1.827 \times 10^6 \div 9000$.
Give your answer in standard form.

..... [2]

Calculating in standard form Click for more variations

5	2.03×10^2 cao	**2**	**B1** for 203 oe If 0 scored, **SC1** for writing *their* ordinary number correctly in standard form

6 Simplify $2.1 \times 10^p + 2.1 \times 10^{p-1}$.
Give your answer in standard form.

..... [2]

Calculating in standard form Click for more variations

6	2.31×10^p	**2**	**B1** for $21 \times 10^{p-1}$ or 0.21×10^p or answer with figs 231

7 **(a)** Write 0.007 09 in standard form.

..... [1]

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

..... [2]

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(a) Converting to and from standard form (b) Calculating in standard form Click for more variations

7(a)	7.09×10^{-3}	**1**	
7(b)	1.6×10^9	**2**	**B1** for 16×10^8 oe

8 One titanium atom has a mass of 7.95×10^{-23} grams.

Calculate the number of titanium atoms in 1 kg of titanium.
Give your answer in standard form.

..... [2]

Calculating in standard form Click for more variations

8	1.26×10^{25} or 1.257×10^{25} to 1.258×10^{25}	**2**	**M1** for $\frac{1000}{7.95 \times 10^{-23}}$ oe or **B1** for 1.26×10^{k} or 1.257×10^{k} to 1.258×10^{k}

9 1 second = 10^6 microseconds.

Change 3×10^{13} microseconds into minutes. Give your answer in standard form.

Answer ..... min [2]

Calculating in standard form Click for more variations

9	$5(.00) \times 10^{5}$	2	**SC1** for 5×10^{k} or 500 000 on answer line

10 $p = 4 \times 10^5$ $q = 5 \times 10^4$

Find, giving your answer in standard form,

(a) pq,

Answer(a) ..... [2]

(b) $\frac{q}{p}$.

Answer(b) ..... [2]

(a) Calculating in standard form (b) Calculating in standard form Click for more variations

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10	**(a)**	2×10^{10}	**2**	**B1** for 20×10^{9} or 20 000 000 000
	(b)	1.25×10^{-1}	**2**	**B1** for 0.125 oe

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