

SMART EXAM RESOURCES

0580 EXTENDED MATH

TOPIC: NUMBERS

SUB-TOPIC: WRITING IN STANDARD FORM

SET-4-QP-MS

1 A light on a computer comes on for 38 500 microseconds.
One microsecond is 10^{-6} seconds.
Work out the length of time, in seconds, that the light is on

(a) in standard form,

Answer(a) s [1]

MARK SCHEME:

(a) 3.85×10^{-2}	1	cao – must be correct notation
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2

Write 0.00658

(a) in standard form,

Answer(a) [1]

(b) correct to 2 significant figures.

Answer(b) [1]

MARK SCHEME:

(a) 6.58×10^{-3}	1	× and 10 essential
(b) 0.00 <u>66</u> cao	1	Allow 6.6×10^{-3}

3 Work out $2(3 \times 10^8 - 4 \times 10^6)$, giving your answer in standard form.

Answer [2]

MARK SCHEME:

5.92×10^8	2	M1 figs 592 on answer line or M1 296×10^6 oe in working
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- 4 (a) Find w when $L = 8 \times 10^{-3}$ and $C = 2 \times 10^{-9}$.
Give your answer in standard form.

Answer(a) $w = \dots\dots\dots$ [3]

MARK SCHEME:

| (a) 2.5×10^5

| 3 | B2 250000 oe or M1 correct part value seen

5 The population of a city is 128 000, correct to the nearest thousand.

(a) Write 128 000 in standard form.

Answer(a) [1]

MARK SCHEME:

(a) 1.28×10^5	1	
(b) 128 500	1	

- 6 The number of spectators at the 2010 World Cup match between Argentina and Mexico was 82 000 correct to the nearest thousand. If each spectator paid 2600 Rand (*R*) to attend the game, what is the lower bound for the total amount paid? Write your answer in standard form.

Answer *R* [3]

MARK SCHEME:

2.119×10^8 cao	3	M1 81500 oe M1 their LB \times 2600
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7 Write the answer to the following calculations in standard form.

(a) $600 \div 8000$

Answer(a) [2]

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

Answer(b) [2]

MARK SCHEME:

(a) 7.5×10^{-2}	2	M1 for 0.075 or $\frac{3}{40}$ or $\frac{6}{80}$ or 0.75×10^{-1} oe
(b) 9.3×10^7	2	M1 for 93 000 000 or 93×10^6 or 0.93×10^8 oe

8 (a) Write 2.8×10^2 as an ordinary number.

Answer(a) [1]

(b) Work out $2.5 \times 10^8 \times 2 \times 10^{-2}$.
Give your answer in standard form.

Answer(b) [2]

MARK SCHEME:

(a)	280	1	
(b)	5×10^6	2	B1 for 5 000 000 oe or B1 for answer $k \times 10^6$ or 5×10^k

- 9 Work out $4 \times 10^{-5} \times 6 \times 10^{12}$.
Give your answer in standard form.

Answer [2]

MARK SCHEME:

2.4×10^8	2	B1 for 240 000 000 oe or B1 for $k \times 10^8$ or 2.4×10^k
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10

(a) Write 5^{-3} as a fraction.

..... [1]

(b) Write 0.004 56 in standard form.

..... [1]

MARK SCHEME:

(a)	$\frac{1}{125}$	1	
(b)	4.56×10^{-3}	1	