7. Mark schemes for Paper 1: arithmetic

Qu.	Requirement	Mark	Additional guidance
1	6,090	1m	
2	8,357	1m	
3	20	1m	
4	336	1m	
5	369	1m	
6	8.993	1m	
7	60	1m	
8	10	1m	
9	0	1m	
10	13	1m	
11	22	1m	**Do not** accept −22
12	8	1m	
13	110	1m	
14	253.4	1m	
15	10	1m	
16	27	1m	
17	101,000	1m	
18	600	1m	**Do not** accept 600%
19	4.75	1m	
20	0.009	1m	
21	7.1	1m	
22	$\frac{6}{7}$	1m	Accept equivalent fractions or an **exact** decimal equivalent, e.g. $0.\overline{857142}$ (accept any unambiguous indication of the recurring digits). **Do not** accept rounded or truncated decimals.

Qu.	Requirement	Mark	Additional guidance

23	Award **TWO** marks for the correct answer of 22,572
	
	If the answer is incorrect, award **ONE** mark for a formal method of long multiplication with no more than **ONE** arithmetic error, e.g.
	
	• 836
	  × 27
	    5852
	  16720
	  22602 *(error)*
	
	OR
	
	• 836
	  × 27
	    5612 *(error)*
	  16720
	  22332
		Up to 2m	Working must be carried through to reach a final answer for the award of **ONE** mark.
			
			Do not award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens:
			
			       836
			  × 27
			    5852
			    1672 *(place value error)*
			    7524

24	$\dfrac{19}{20}$	1m	Accept equivalent fractions or an **exact** decimal equivalent, e.g. 0.95

Qu.	Requirement	Mark	Additional guidance
25	Award **TWO** marks for the correct answer of 24 If the answer is incorrect, award **ONE** mark for the formal methods of division with no more than **ONE** arithmetic error, i.e. • long division algorithm, e.g. $\quad\quad\quad$ 23 r29 37 ⟌ 888 $\quad$− 740 $\quad\quad$ 140 *(error)* $\quad\quad$− 111 $\quad\quad\quad$ 29 **OR** $\quad\quad\quad$ 42 *(error)* 37 ⟌ 888 $\quad$− 740 $\quad\quad$ 20 × 37 $\quad\quad$ 148 $\quad$− 148 $\quad\quad$ 4 × 37 $\quad\quad\quad$ 0 • short division algorithm, e.g. $\quad\quad\quad$ 2 3 r27 *(error)* 37 ⟌ 88^{14}8	Up to 2m	Working must be carried through to reach a final answer for the award of **ONE** mark. Short division methods **must** be supported by evidence of appropriate carrying figures to indicate the use of a division algorithm, and be a complete method. The carrying figure **must** be less than the divisor.
26	$3\frac{3}{10}$ **OR** $\frac{33}{10}$	1m	Accept equivalent mixed numbers, fractions or an **exact** decimal equivalent, e.g. 3.3
27	112	1m	**Do not** accept 112%
28	$\frac{23}{36}$	1m	Accept equivalent fractions or an **exact** decimal equivalent, e.g. 0.63$\dot{8}$ (accept any unambiguous indication of the recurring digits). **Do not** accept rounded or truncated decimals.
29	459	1m	**Do not** accept 459%

Qu.	Requirement	Mark	Additional guidance
30	Award **TWO** marks for the correct answer of 215,016 If the answer is incorrect, award **ONE** mark for the formal method of long multiplication with no more than **ONE** arithmetic error, e.g. • 3468 × 62 6936 208080 214016 *(error)* **OR** • 3468 × 62 6934 *(error)* 208080 215014	Up to 2m	Working must be carried through to reach a final answer for the award of **ONE** mark. **Do not** award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens: • 3468 × 62 6936 20808 *(place value error)* 27744
31	$\dfrac{2}{9}$	1m	Accept equivalent fractions or an **exact** decimal equivalent, e.g. 0.$\dot{2}$ (accept any unambiguous indication of the recurring digits). **Do not** accept rounded or truncated decimals.
32	$1\dfrac{3}{4}$ **OR** $\dfrac{7}{4}$	1m	Accept equivalent mixed numbers, fractions or an **exact** decimal equivalent, e.g. 1.75
33	162	1m	**Do not** accept 162%

Qu.	Requirement	Mark	Additional guidance
34	$17\frac{1}{2}$ **OR** $\frac{70}{4}$ **OR** $\frac{35}{2}$	1m	Accept equivalent mixed numbers, fractions or an **exact** decimal equivalent, e.g. 17.5
35	450	1m	
36	Award **TWO** marks for the correct answer of 97 If the answer is incorrect, award **ONE** mark for the formal methods of division with no more than **ONE** arithmetic error, i.e. • long division algorithm, e.g. $\begin{array}{r} 96\text{ r}82 \\ 83\overline{)8051} \\ -\ \underline{7470} \\ 580\ (error) \\ -\ \underline{498} \\ 82 \end{array}$ **OR** • $\begin{array}{r} 47\ (error) \\ 83\overline{)8051} \\ -\ \underline{4150} \quad 50\times83 \\ 3901 \\ -\ \underline{3320} \quad 40\times83 \\ 581 \\ \underline{581} \quad 7\times83 \\ 0 \end{array}$ • short division algorithm, e.g. $\begin{array}{r} 9\ \ 6\text{ r}73 \\ 83\overline{)805\,{}^{57}1} \quad (error) \end{array}$	Up to 2m	Working must be carried through to reach a final answer for the award of **ONE** mark. Short division methods **must** be supported by evidence of appropriate carrying figures to indicate the use of a division algorithm, and be a complete method. The carrying figure **must** be less than the divisor.