

7. Mark schemes for Paper 1: arithmetic

Qu.	Requirement	Mark	Additional guidance
1	712	1m	
2	$\frac{5}{11}$	1m	Accept equivalent fractions or an exact decimal equivalent, e.g. $0.\overline{45}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
3	90	1m	
4	838	1m	
5	9	1m	
6	200	1m	
7	6,562	1m	
8	46	1m	
9	81.08	1m	
10	308	1m	
11	90	1m	
12	600	1m	
13	4	1m	
14	4,921	1m	
15	50,000	1m	
16	4.6	1m	
17	$\frac{6}{7}$	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.
18	0.001	1m	Accept equivalent fractions, e.g. $\frac{1}{1000}$

Qu.	Requirement	Mark	Additional guidance
19	750	1m	
20	<p>Award TWO marks for the correct answer of 18,055</p> <p>If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error, e.g.</p> <ul style="list-style-type: none"> $\begin{array}{r} 785 \\ \times 23 \\ \hline 2355 \\ 15700 \\ \hline 18155 \text{ (error)} \end{array}$ <p>OR</p> <ul style="list-style-type: none"> $\begin{array}{r} 785 \\ \times 23 \\ \hline 2345 \text{ (error)} \\ 15700 \\ \hline 18045 \end{array}$ 	Up to 2m	<p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>Do not award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens:</p> $\begin{array}{r} 785 \\ \times 23 \\ \hline 2355 \\ 1570 \text{ (place value error)} \\ \hline 3925 \end{array}$
21	240	1m	Do not accept 240%

Qu.	Requirement	Mark	Additional guidance
22	<p>Award TWO marks for the correct answer of 15</p> <p>If the answer is incorrect, award ONE mark for a formal method of division with no more than ONE arithmetic error, i.e.</p> <ul style="list-style-type: none"> long division algorithm, e.g. $\begin{array}{r} 14 \text{ (error)} \\ 43 \overline{) 645} \\ \underline{- 430} \\ 215 \\ \underline{- 215} \\ 0 \end{array}$ <p>OR</p> $\begin{array}{r} 15 \text{ r}28 \\ 43 \overline{) 645} \\ \underline{- 430} \qquad 10 \times 43 \\ 215 \\ \underline{- 129} \qquad 3 \times 43 \\ 114 \text{ (error)} \\ \underline{- 86} \qquad 2 \times 43 \\ 28 \end{array}$ <ul style="list-style-type: none"> short division algorithm, e.g. $\begin{array}{r} 1 \ 5 \text{ r}3 \text{ (error)} \\ 43 \overline{) 64215} \end{array}$	Up to 2m	<p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>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.</p>
23	14	1m	
24	$\frac{7}{10}$	1m	Accept equivalent fractions or the exact decimal equivalent, e.g. 0.7
25	$2\frac{1}{2}$	1m	Accept equivalent mixed numbers, fractions or the exact decimal equivalent, e.g. 2.5
26	0.262	1m	
27	117	1m	

Qu.	Requirement	Mark	Additional guidance
28	$\frac{2}{3}$	1m	Accept equivalent fractions or an exact decimal equivalent, e.g. $0.\overline{6}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
29	Award TWO marks for the correct answer of 465,518 If the answer is incorrect, award ONE mark for the formal method of long multiplication with no more than ONE arithmetic error, e.g. <ul style="list-style-type: none"> • $\begin{array}{r} 5413 \\ \times \quad 86 \\ \hline 32478 \\ 433040 \\ \hline 465438 \text{ (error)} \end{array}$ OR • $\begin{array}{r} 5413 \\ \times \quad 86 \\ \hline 32478 \\ 423040 \text{ (error)} \\ \hline 455518 \end{array}$ 	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: <ul style="list-style-type: none"> • $\begin{array}{r} 5413 \\ \times \quad 86 \\ \hline 32478 \\ 43304 \text{ (place value error)} \\ \hline 75782 \end{array}$
30	198	1m	Do not accept 198%
31	$\frac{1}{8}$	1m	Accept equivalent fractions or an exact decimal equivalent, e.g. 0.125
32	77	1m	
33	60	1m	Do not accept unsimplified equivalent fractions unless accompanied by 60 or $\frac{60}{1}$
34	182	1m	Do not accept 182%
35	$2\frac{17}{21}$ OR $\frac{59}{21}$	1m	Accept equivalent mixed numbers, fractions or the exact decimal equivalent, e.g. $2.\overline{809523}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.

Qu.	Requirement	Mark	Additional guidance
36	<p>Award TWO marks for the correct answer of 91</p> <p>If the answer is incorrect, award ONE mark for the formal methods of division with no more than ONE arithmetic error, i.e.</p> <ul style="list-style-type: none"> long division algorithm, e.g. $\begin{array}{r} 81 \text{ (error)} \\ 97 \overline{) 8827} \\ \underline{- 8730} \\ 97 \\ \underline{- 97} \\ 0 \end{array}$ <p>OR</p> $\begin{array}{r} 91 \text{ r}2 \\ 97 \overline{) 8827} \\ \underline{- 7760} \qquad 80 \times 97 \\ 1069 \text{ (error)} \\ \underline{- 970} \qquad 10 \times 97 \\ 99 \\ \underline{- 97} \qquad 1 \times 97 \\ 2 \end{array}$ <ul style="list-style-type: none"> short division algorithm, e.g. $\begin{array}{r} 7 \ 1 \text{ (error)} \\ 97 \overline{) 882^9 7} \end{array}$	Up to 2m	<p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>Sometimes an error in calculation leads to a remainder which equals the truncated decimal equivalent. In such cases when the remainder is expressed as a decimal, evidence of working leading to the decimal must be seen in order to condone the possible notation error. (See General Marking Principle 13, page 8.)</p> <p>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.</p>