

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 | |

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| 20 | 0.009 | 1m | |
| 21 | 7.1 | 1m | |
| 22 | $\frac{6}{7}$ | 1m | Accept equivalent fractions or an exact decimal equivalent, e.g. 0.857142 (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals. |

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| 23 | <p>Award TWO marks for the correct answer of 22,572</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"> $\begin{array}{r} 836 \\ \underline{27} \\ 5852 \\ \underline{16720} \\ 22602 \\ \times \end{array}$ <p>(error)</p> <p>OR</p> $\begin{array}{r} 836 \\ \underline{27} \\ 5612 \\ \underline{16720} \\ 22332 \\ \times \end{array}$ <p>(error)</p> | 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> $\begin{array}{r} 836 \\ \underline{27} \\ \times 5852 \\ \underline{1672} \\ 7524 \end{array} \text{ (place value error)}$ |
| 24 | $\frac{19}{20}$ | 1m | Accept equivalent fractions or an exact decimal equivalent, e.g. 0.95 |

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| 25 | <p>Award TWO marks for the correct answer of 24</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. $\begin{array}{r} 23 \text{ r}29 \\ 37 \overline{)888} \\ \underline{-740} \\ 140 \text{ (error)} \\ \underline{111} \\ -29 \end{array}$ <p>OR</p> $\begin{array}{r} 42 \text{ (error)} \\ 37 \overline{)888} \\ \underline{740} \\ -148 \quad 20 \times 37 \\ \underline{148} \\ -0 \quad 4 \times 37 \end{array}$ <ul style="list-style-type: none"> • short division algorithm, e.g. $\begin{array}{r} 23 \text{ r}27 \text{ (error)} \\ 37 \overline{)888} \\ \underline{74} \\ 148 \end{array}$ | 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> |
| 26 | $3 \frac{3}{10}$ <p>OR</p> $\frac{33}{10}$ | 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 | <p>Accept equivalent fractions or an exact decimal equivalent, e.g. 0.638 (accept any unambiguous indication of the recurring digits).</p> <p>Do not accept rounded or truncated decimals.</p> |

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| 29 | 459 | 1m | Do not accept 459% |
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| 30 | <p>Award o TWO marks for the correct answer 215,016</p> <p>answer is incorrect, award ONE mark a formal method of long multiplication io more than ONE arithmetic error, e.g.</p> <ul style="list-style-type: none"> $\begin{array}{r} 3468 \\ \times 62 \\ \hline 6936 \\ 208080 \\ \hline 214016 \text{ (error)} \end{array}$ OR $\begin{array}{r} 3468 \\ \times 62 \\ \hline 6934 \text{ (error)} \\ 208080 \\ \hline 215014 \end{array}$ | 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> <ul style="list-style-type: none"> $\begin{array}{r} 3468 \\ \quad 62 \\ \times 6936 \\ \hline 20808 \\ \hline 27744 \text{ (place value error)} \end{array}$ |
| 31 | $\frac{2}{9}$ | 1m | <p>Accept equivalent fractions or an exact decimal equivalent, e.g. 0.2 (accept any unambiguous indication of the recurring digits).</p> <p>Do not accept rounded or truncated decimals.</p> |
| 32 | $1\frac{3}{4}$ OR $\frac{7}{4}$ | 1m | Accept equivalent mixed numbers, fractions or an exact decimal equivalent, e.g. 1.75 |
| 33 | 162 | 1m | Do not accept 162% |

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| 34 | $17\frac{1}{2}$ <p>OR</p> $\frac{70}{4} \text{ OR } \frac{35}{2}$ | 1m | Accept equivalent mixed numbers, fractions or an exact decimal equivalent, e.g. 17.5 |
| 35 | 450 | 1m | |
| 36 | <p>Award TWO marks for the correct answer of 97</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} 96 \text{ r}82 \\ 83 \overline{)8051} \\ \underline{-7470} \\ 580 \text{ (error)} \\ \underline{498} \\ 82 \end{array} $ <p>OR</p> <ul style="list-style-type: none"> • $ \begin{array}{r} 47 \text{ (error)} \\ 83 \overline{)8051} \\ \underline{4150} \\ -3901 \quad 50 \times 83 \\ \underline{3320} \quad -40 \times 83 \\ 581 \\ \underline{581} \quad 7 \times 83 \\ 0 \end{array} $ <ul style="list-style-type: none"> • short division algorithm, e.g. $ \begin{array}{r} 9 \text{ 6 r}73 \\ 83 \overline{)80571} \text{ (error)} \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> |