

Cambridge Assessment International Education Cambridge International General Certificate of Secondary Education

MATHEMATICS

0580/12 March 2019

Paper 1 (Core) MARK SCHEME Maximum Mark: 56

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the March 2019 series for most Cambridge IGCSE[™], Cambridge International A and AS Level components and some Cambridge O Level components.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit
 is given for valid answers which go beyond the scope of the syllabus and mark scheme,
 referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Abbreviations

caocorrect answer onlydepdependentFTfollow through after erroriswignore subsequent workingoeor equivalentSCSpecial Casenfwwnot from wrong working

soi seen or implied

| Question | Answer | Marks | Partial Marks |
|----------|---|-------|--|
| 1 | 1220 | 1 | |
| 2 | [0].03 oe | 1 | |
| 3 | С | 1 | |
| 4 | -14 | 1 | |
| 5 | 330 | 1 | |
| 6 | correct explanation | 1 | need to see 190 and 180 |
| 7 | triangular prism | 1 | |
| 8(a) | 0.047 | 1 | |
| 8(b) | 2.76×10^{6} | 1 | |
| 9 | correct reflection | 2 | B1 for 5 vertices correct |
| 10 | 1, 2, 3, 4, 6, 12 | 2 | B1 for 4 correct factors and no errors or 5 factors and 1 error |
| 11(a) | $\begin{pmatrix} -15\\12 \end{pmatrix}$ | 1 | |
| 11(b) | $\begin{pmatrix} 5\\2 \end{pmatrix}$ | 1 | |
| 12(a) | y^{15} cao | 1 | |
| 12(b) | w ⁹ cao | 1 | |
| 13 | $\sqrt{100}$ and 9 – 7 | M1 | |
| | 5 | A1 | |
| 14 | 467.42 or 467 | 2 | M1 for 500 ÷ 1.0697 |
| 15(a) | 64.5 | 1 | |
| 15(b) | 4100000 oe | 1 | |

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| Question | Answer | Marks | Partial Marks |
|----------|---|-------|--|
| 16 | 4.15, 4.25 | 2 | B1 for each one in correct position. If 0 scored SC1 for both correct but reversed. |
| 17 | correctly enlarged triangle | 2 | M1 for an enlargement scale factor 3 but incorrect position |
| 18 | 70 | 2 | M1 for 25000×0.0028 oe |
| 19 | 4g(2g-1) | 2 | M1 for $2g(4g-2)$, $g(8g-4)$ or $4(2g^2-g)$ or $2(4g^2-2g)$ or $2^2g(2g-1)$ as final answers |
| 20 | [x =]3.5, [y =]3 with supporting working | 2 | M1 for a correct equation in terms of <i>x</i> or <i>y</i> . If 0 scored SC1 for both answers correct. |
| 21 | 375 | 3 | M2 for $2(12 \times 5 + 12 \times 7.5 + 5 \times 7.5)$ oe or M1 for 12×5 or 12×7.5 or 5×7.5 |
| 22 | $22\frac{2}{9}$ or 22.2 or 22.22 | 3 | M2 for $\frac{77-63}{63}$ [×100] oe or $\frac{77}{63}$ ×100 [-100] oe or M1 for $\frac{77}{63}$ oe |
| 23(a) | kite | 1 | |
| 23(b) | 24 | 2 | B1 for any relevant correct area calculated or M1 for a fully correct method |
| | cm ² | 1 | |
| 24 | 14 | 4 | M1 for 5×9.4 M1 for <i>their</i> $(5 \times 9.4) - (3 + 5 + 10 + 12)$ M1dep for <i>their</i> greatest number -3 |
| 25 | $\frac{25}{8}$ | B1 | or $\frac{75}{24}$ |
| | <i>their</i> $\frac{25}{8} \times \frac{12}{5}$ or <i>their</i> $\frac{75}{24} \div \frac{10}{24}$ oe | M1 | $\frac{75}{24} \times \frac{24}{10}$ |
| | their $\frac{300}{40}$ oe | M1 | oe e.g. $\frac{1800}{240}$, $\frac{75}{10}$, $\frac{60}{8}$, $\frac{30}{4}$, $\frac{15}{2}$ |
| | $7\frac{1}{2}$ cao | A1 | |

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| Question | Answer | Marks | Partial Marks |
|----------|------------------------|-------|--|
| 26(a) | 2.95 or 2.954 to 2.955 | 3 | M2 for $\sqrt{5.3^2 - 4.4^2}$ or better or M1 for $5.3^2 = 4.4^2 + y^2$ or better |
| 26(b) | 40.3 or 40.26 to 40.27 | 2 | M1 for $\sin[x=]\frac{5.3}{8.2}$ |