Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

## 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.
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## 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

| cao | correct answer only |
| :--- | :--- |
| dep | dependent |
| FT | follow through after error |
| isw | ignore subsequent working |
| oe | or equivalent |
| SC | Special Case |
| nfww | not from wrong working |
| soi | seen or implied |


| Question | Answer |  | Marks | Partial Marks |
| :---: | :---: | :---: | :---: | :---: |
| 1(a)(i) | Fri[day] |  | 1 |  |
| 1(a)(ii) | 7 |  | 1 |  |
| 1(a)(iii) | -5 |  | 1 |  |
| 1(b)(i) | 10 cao |  | 3 | M2 for $\frac{6.5 \times 60}{39}$ oe or M1 for distance $\div$ speed |
| 1(b)(ii) | 1149 |  | 4 | M2 for $(6.5 \times 1000) \div(\pi \times 1.8)$ oe or M1 for $\pi \times 1.8$ oe <br> A1 for 1149.3 to 1149.5 <br> B1 for their answer to at least 1dp truncated to the integer |
| 1(c) | 1310 |  | 3 | M2 for [LCM=] $2 \times 3 \times 3 \times 5$ or 90 or M1 for [30=] $2 \times 3 \times 5$ or [45=] $3 \times 3 \times 5$ OR <br> M2 for listing times or multiples to at least 1310 or 90 or M1 for adding times i.e. one correct addition e.g. 1210 |
| 1(d)(i) | 47 |  | 1 |  |
| 1(d)(ii) | 1021 |  | 1 |  |
| 1(e) | 8 |  | 2 | M1 for $437 \div 62$ oe implied by $7.04 \ldots$ or 7.05 |
| 2(a) | [star] | 6 correct lines only | 2 | B1 for 3 correct lines |
|  | [rectangle] | 2 correct lines only | 2 | B1 for only 1 correct line or 2 correct lines and 1 wrong |
| 2(b) | $\begin{aligned} & {[x=] 66} \\ & {[y=] 114} \end{aligned}$ |  | 2 | B1 for one correct angle or for both angles adding to 180 |


| Question | Answer | Marks | Partial Marks |
| :---: | :---: | :---: | :---: |
| 2(c) | 144 | 3 | M1 for $360 \div 10$ soi by 36 <br> M1 for $[y=$ ] 180 - their 36 <br> If 0 scored SC2 for a correct interior angle of a regular polygon (greater than 90), providing not from wrong working |
| 2(d) | $\begin{aligned} & {[j=] 53} \\ & {[k=] 37} \end{aligned}$ | 3 | B2 for one correct angle or B1 for 90 seen, marked on drawing in the correct place or for both angles adding to 90 |
| 2(e) | 72 | 3 | M1 for $(18 \times 35) \div 2$ implied by 315 M1 for $(18 \times 27) \div 2$ implied by 243 |
| 3(a) | 51.5 | 3 | M2 for $4 \times 8+9.5+10$ oe or B1 for two from 8 or 32, 9.5 and 10 |
| 3(b) | 13.4[0] | 3 | M2 for $4.2[0]+2 \times 2.8[0]+2 \times 1.8[0]$ oe or M1 for two correct categories |
| 3(c) | 2.2[0] | 2 | M1 for $6 \times 1.3[0]$ implied by $7.8[0]$ |
| 3(d) | 27053 | 1 |  |
| 3(e) | 13.7 or 13.70 to 13.71 | 3 | M2 for $\frac{14100-12400}{12400}[\times 100]$ or $\frac{14100}{12400} \times 100[-100]$ or $\left(\frac{14100}{12400}-1\right)[\times 100]$ or M1 for $14100-12400$ or $\frac{14100}{12400}$ oe |
| 3(f) | 2915564 | 3 | B1 for each pair of 29, 15 and 64 |
| 4(a)(i) | 6 | 1 |  |
| 4(a)(ii) | 8.5 | 2 | M1 for $8 x-6 x=2+15$ or better |
| 4(b) | $5(x-3)$ final answer | 1 |  |
| 4(c) | $5 x-4 y$ final answer | 2 | B1 for $5 x+k y$ or $k x-4 y$ ( $k$ could be 0 ) |
| 4(d) | 61 | 2 | B1 for 55 or 6 or M1 for $5 \times 11-2 \times-3$ |
| 4(e) | $p=\frac{H+3}{7}$ oe final answer | 2 | M1 for correct first step |
| 4(f)(i) | 7 | 1 |  |
| 4(f)(ii) | -10 | 1 |  |


| Question | Answer | Marks | Partial Marks |
| :---: | :---: | :---: | :---: |
| 5(a)(i) | 1 | 1 |  |
| 5(a)(ii) | 7 | 1 |  |
| 5(a)(iii) | 4 nfww | 2 | M1 for $11235 \ldots$ or ... 35678 or 3 and 5 selected |
| 5(b)(i) | 50 | 1 |  |
| 5(b)(ii) | 3.28 | 3 | M1 for $[0 \times 5]+1 \times 7+2 \times 8+3 \times 10+4 \times$ $6+5 \times 4+6 \times 5+7 \times 3+8 \times 2$ oe implied by 164 <br> M1dep for their $164 \div \operatorname{their}(\mathbf{b})(\mathbf{i})$ |
| 5(c)(i) | $\begin{array}{ll} 23 & \\ 38 & 114 \end{array}$ | 3 | B1 for each or if 0 scored M1 for $123 \div 41$ or $54 \div 18$ or 3 |
| 5(c)(ii) | correct line | 1 |  |
| 6(a) | $-1 \ldots-2 \ldots-6 \ldots 6 \ldots 2 \ldots 1$ | 3 | B2 for 4 or 5 correct or B1 for 2 or 3 correct |
| 6(b) | correct smooth curves | 4 | B3FT for 9 or 10 points plotted correctly B2FT for 7 or 8 points plotted correctly B1FT for 5 or 6 points plotted correctly FT their table |
| 6(c) | correct continuous ruled line | 1 |  |
| 6(d) | -1.2 oe | 1 | or FT their line and their graph |
| 7(a) | Enlargement <br> [centre] (3, -1) <br> [s.f.] 2 | 3 | B1 for each |
| 7(b) | Rotation [centre] ( 0,0 ) oe $180^{\circ}$ oe | 3 | B1 for each |
| 7(c)(i) | Correct translation points $(-4,3),(-1,3),(-3,7)$ | 2 | B1 for a correct horizontal or vertical movement i.e. by $\binom{-6}{k}$ or $\binom{k}{5}$ |
| 7(c)(ii) | Correct reflection points (2, -4), (5, -4), (3, -8) | 2 | B1 for a correct reflection in $y=k$ |
| 8(a)(i) | $\frac{6}{14}$ oe isw | 1 |  |
| 8(a)(ii) | $\frac{11}{14}$ oe isw | 1 |  |


| Question | Answer | Marks | Partial Marks |
| :---: | :---: | :---: | :---: |
| 8(a)(iii) | 0 isw | 1 |  |
| 8(b)(i) | [0].18 oe | 2 | M1 for [1-] (0.46+0.22 + 0.14) oe |
| 8(b)(ii) | Brown | 1 |  |
| 8(b)(iii) | 7 | 1 |  |
| 9(a)(i) | 36 | 1 |  |
| 9(a)(ii) | add $7 \quad$ oe | 1 |  |
| 9(a)(iii) | $7 n+1$ oe final answer | 2 | B1 for $7 n+c$ or $k n+1(k \neq 0)$ or $7 n+1$ or $8+(n-1) 7$ spoilt |
| 9(b) | $11 \quad 14 \quad 19$ | 2 | B1 for 2 correct <br> If 0 scored SC1 for $10,11,14$ |
| 9(c) | $n^{3}$ | 1 |  |

