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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2015 series for most
Cambridge IGCSE®, Cambridge International A and AS Level components and some
Cambridge O Level components.
### 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

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<thead>
<tr>
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<tbody>
<tr>
<td>1 (a)</td>
<td>2, 3, 6, 9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b) (i)</td>
<td>26</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>300.763</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>12.8 or 12.76…</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(c) (i)</td>
<td>807.54 cao</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>807.5 cao</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>810 cao</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(iv)</td>
<td>800 cao</td>
<td>1</td>
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</table>
| 2 | $a = 48$
  | $b = 44$
  | $c = 44$
  | $d = 88$ | 1 |

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<thead>
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<tbody>
<tr>
<td>3 (a)</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>(b)</td>
<td>17.8 or 17.77…</td>
<td>3</td>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>4 (a) (i)</td>
<td>19.2</td>
<td>1</td>
</tr>
<tr>
<td>(ii)</td>
<td>18.4</td>
<td>1</td>
</tr>
</tbody>
</table>
| (b) | 0.5
  | 0.4 | 1 |
| (c) | 64
  | 64 | 1 |
| (d) | 147.2 [0] | 2 |

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### Question 5
(a) (i) 5
(ii) 23
(iii) 23.5 oe
(iv) 23.6
(b) 4 bars

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<tbody>
<tr>
<td>1</td>
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<tr>
<td>1</td>
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<tr>
<td>2 B1 for 4 correct bars</td>
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### Question 6
(a) 150
(b) 300
(c) [0.65]
(d) [0.75]

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<tr>
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<tbody>
<tr>
<td>1 FT their (a) × 2</td>
<td></td>
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<tr>
<td>2 M1 for 2 × 1.45 + [0.7][0] or better</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td></td>
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</table>

### Question 7
(a) \( F + 2M \)
(b) 15
(c) 9

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<tbody>
<tr>
<td>2 B1 for 2M seen</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2 FT M1 for correct substitution in their formula</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 FT M1 for correct substitution in their formula</td>
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</tbody>
</table>

### Question 8
(a) [Diagram]
(b) (i) 1 3 7
(ii) 2 10
(iii) 4 9
(c) (i) \( \frac{5}{10} \) oe
(ii) \( \frac{3}{10} \) oe
(iii) \( \frac{4}{10} \) oe

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<tr>
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<tbody>
<tr>
<td>1 FT</td>
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<td>1 FT</td>
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</tbody>
</table>
9 (a)  
33
46

(b) \( n^2 - 3 \)

1

3  
B2 for \( n^2 \pm k \)
or M1 for finding second differences or any quadratic

10 (a)  
\[ \begin{array}{c}
1/3 \\
1/5 \\
1/15 \\
1/15 \\
1/15 \\
\end{array} \]

(b) \( \frac{4}{100} \) oe

2  
M1FT for \( \frac{4}{5} \times \text{their} \frac{1}{20} \)

(c) \( \frac{71}{75} \) or 0.947 or 0.9466…

3  
M2 for \( \frac{4}{5} \times \text{their} \frac{19}{20} + \text{their} \left( \frac{1}{5} \times \frac{14}{15} \right) \)
or M1 for \( \frac{4}{5} \times \text{their} \frac{19}{20} \) or \( \text{their} \left( \frac{1}{5} \times \frac{14}{15} \right) \)

11 (a) Vertices at
(3, 1) (3, 2)
(4, 2) (4, 4)
(5, 4) (5, 1)

2  
If 0 scored SC1 for reflection in \( y = 1 \) or \( x = 0 \)

(b) Vertices at
(–5, –2) (–3, –1)
(–4, –1) (–4, 1)
(–5, –1) (–3, –2)

2  
If 0 scored SC1 for translation of
\[ \begin{pmatrix} -2 \\ k \end{pmatrix} \text{ or } \begin{pmatrix} -3 \\ -2 \end{pmatrix} \]

(c) Vertices at
(1, –1) (1, –2)
(2, –2) (3, –1)
(2, –4) (3, –4)

2  
If 0 scored SC1 for any rotation about (0, 0) or a rotation of 180°

12 (a) Points plotted correctly

2  
B1 for each point

(b) (5, 0)

2  
B1 for each co-ordinate
If 0 scored SC1 for (0, 5)

(c) 8.49

3  
M1 for \( \sqrt{6^2 + 6^2} \) or better
A1 for 8.485 to 8.486

(d) –1

2  
M1 for \( \frac{\text{rise}}{\text{run}} \)

(e) \( y = -x + 5 \) oe

2 FT  
M1 for \( y = -x + k \) or \( x + y = k \)
FT from (d)
### Mark Scheme

**Cambridge IGCSE – October/November 2015**

#### 13 (a)  72

1

#### (b)  108

2 M1 for \( \frac{2(180 - \text{their 72})}{2} \) or \( 180 - \frac{360}{5} \) oe  

or B1 for 54

#### (c)  4.13 or 4.129…

2 FT  

M1 for \( \tan 54 = \frac{r}{3} \) oe  

FT \( \frac{\text{their angle in (a)}}{2} \)

or angle in (b)  

3 FT  

M2 for \( \left( \frac{1}{2} \times 6 \times \text{their 4.13} \right) \times 5 \)

or M1 for \( \frac{1}{2} \times 6 \times \text{their 4.13} \)

#### (d)  61.9 – 62.[0]

14 (a)  

 Fully correct curve  

2 B1 for correct cubic shape (maximum then minimum)

#### (b) (i)  (–4, 0) (1, 0) (5,0)

2 B1 for 2 correct

#### (ii)  (0, 10)

1

#### (iii)  (3.27, –14.3) or (3.270.., –14.28 to –14.27)

2 B1 for each co-ordinate