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 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
Abbreviations
awrt answers which round to
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

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Marks</th>
<th>Part Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (a)</td>
<td>trapezium triangle square parallelogram</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>1</td>
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<td></td>
<td>1</td>
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<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b) (i)</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>2 correct lines</td>
<td>2</td>
<td>B1 for 1 correct line and no incorrect or for 2 correct lines but ≥1 incorrect</td>
</tr>
<tr>
<td>2 (a) (i)</td>
<td>38</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>67</td>
<td>2</td>
<td>B1 for 35 and 32 soi</td>
</tr>
<tr>
<td>(b)</td>
<td>4400</td>
<td>2</td>
<td>B1 for 4375</td>
</tr>
<tr>
<td>(c)</td>
<td>5</td>
<td>3</td>
<td>B2 for answer 4 or 4.25 or M1 for (175 + 12) ÷ 44 soi</td>
</tr>
<tr>
<td>3 (a) (i)</td>
<td>130</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>Obtuse</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>147</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>57</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4 (a)</td>
<td>Correct pattern</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>13, 16</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>+3 oe</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Sarah, with correct justification</td>
<td>3</td>
<td>M2 for substituting one value bigger than or equal to 2 into both formulae or M1 for any substituting into either formula</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>5 (a)</strong></td>
<td>62.5 oe</td>
<td>2</td>
<td>M1 for $6\frac{1}{2} \times 10$ oe</td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>12 min 30 sec</td>
<td>4</td>
<td>B3 for 12.5 minutes seen or M2 for $6.25 \div 30 \times 60$ oe or M1 for $6.25 \div 30$ oe</td>
</tr>
<tr>
<td><strong>6 (a)</strong></td>
<td>57</td>
<td>2</td>
<td>B1 for 12 or 45 seen or M1 for $6 \times 2 + 9 \times 5$ seen</td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>5x +13</td>
<td>2</td>
<td>B1 for 5x or [+13] seen</td>
</tr>
<tr>
<td><strong>(c)</strong></td>
<td>$3(2x + 3y)$</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>7 (a)</strong></td>
<td>24</td>
<td>2</td>
<td>M1 for $6 \times 8 + 2$ soi</td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>336</td>
<td>3FT</td>
<td>FT $288 + 2 \times$their (a)</td>
</tr>
<tr>
<td><strong>(c)</strong></td>
<td>288</td>
<td>1FT</td>
<td>FT $12 \times$their (a)</td>
</tr>
<tr>
<td><strong>8 (a)</strong></td>
<td>16.11</td>
<td>3</td>
<td>M2 for $8.95 \div 5 \times 9$ or M1 for $8.95 \div 5$</td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>1.38</td>
<td>3</td>
<td>M2 for $1.20 \times 1.15$ oe or M1 for $1.20 \times 0.15$ oe</td>
</tr>
<tr>
<td><strong>(c)</strong></td>
<td>12</td>
<td>3</td>
<td>M2 for $(5.50 - 4.84) \div 5.50$ oe or M1 for $4.84 \div 5.50$ oe</td>
</tr>
<tr>
<td><strong>9 (a)</strong></td>
<td>10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>2</td>
<td>3</td>
<td>M1 for $6x - 3 = 9$ or for $2x - 1 = 3$ or M1 for $6x = 12$ or for $2x = 4$</td>
</tr>
<tr>
<td><strong>(c)</strong></td>
<td>$4\frac{1}{2}$ oe</td>
<td>3</td>
<td>M2 for $7x - 3x$ seen and $20 - 2$ seen or M1 for $7x - 3x$ seen or $20 - 2$ seen</td>
</tr>
<tr>
<td><strong>10 (a)</strong></td>
<td>[0.75, 1.5] 3, 6, 12, 24</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>(b)</strong></td>
<td>Correct curve</td>
<td>1</td>
<td>B1 for correct shape</td>
</tr>
<tr>
<td><strong>(c)</strong></td>
<td>Correct line</td>
<td>1</td>
<td>Above where curve crosses y-axis</td>
</tr>
<tr>
<td><strong>(i)</strong></td>
<td>1.415 to 1.42</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### 11 (a)
Steve
Median = 27
IQR = 13

(b)
Tam
Median = 23
IQR = 11 or 11.5

(c)
Steve’s plants are taller  oe  
Tam’s plants have a more consistent height  oe

- **B1** for 30 or 17 seen
- **M1** for 28 or 28.5 or 17 seen

### 12 (a)
[0.455] 0.21, 0.335

(b)
Large amount of trials  oe

(c) 1675

(d) 0.665

- **M1** for \( n \div 200 \)  soi
- **M1** for \( \text{their} \frac{67}{200} \times 5000 \)
- **M1** for 0.455 + \( \text{their}(0.21) \)

### 13 (a)
1.17 \times 10^{13}

(b) [0].00013

(c) \( \sqrt{\frac{E}{m}} \)  oe

- **B1** for 9 \times 10^{16} seen
- **M1** for \( c^2 = \frac{E}{m} \)
- or **SC1** for answer \( \frac{\sqrt{E}}{m} \)

### 14
826 or 825.6 to 825.7

- **M1** for 3 \times 100
- **M1** for 4 \times 80
- **M1** for 2 \times 40
- **M2** for \( \frac{1}{2} \times \pi \times 80 \)
- or **M1** for \( \pi \times 80 \)

### 15 (a)
8.13 or 8.127…

(b) 27.6 or 27.64…

- **M1** for 4.6^2 + 6.7^2 seen
- **M2** for 10.8 \div \sin 23
- or **M1** for \( \sin 23 = \frac{10.8}{y} \)

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