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 May/June 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
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<th>Qu.</th>
<th>Answers</th>
<th>Mark</th>
<th>Part Marks</th>
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<tbody>
<tr>
<td>1</td>
<td>(a) [\frac{17x + 13}{6}] cao final answer</td>
<td>2</td>
<td>M1 for [\frac{2(4x - 1)}{6} + \frac{3(3x + 5)}{6}] or better oe</td>
</tr>
<tr>
<td></td>
<td>(b) (i) [\frac{1}{2}] or 0.5 cao</td>
<td>1</td>
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<tr>
<td></td>
<td>(ii) (y = 1) final answer</td>
<td>1</td>
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<td></td>
<td>(iii) Line from (6, 1) to (4, 3)</td>
<td>1</td>
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<tr>
<td></td>
<td>(iv) (y = -x + 7) final answer</td>
<td>2</td>
<td>B1 for any equation with grad (-1) and/or intercept 7</td>
</tr>
<tr>
<td></td>
<td>(v) (0, 6)</td>
<td>2</td>
<td>B1 for line from (2, 2) with (y)-intercept between 5 and 7 soi Or for correct (unspecified) equation ((y = -2x + 6))</td>
</tr>
<tr>
<td>2</td>
<td>(a) 27</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Constant speed</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>(c) 0.08 or [\frac{2}{25}] final answer</td>
<td>1</td>
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<tr>
<td></td>
<td>(d) 3 to 3.5</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>(e) 1500</td>
<td>2</td>
<td>M1 for [\frac{1}{2}(200 + 50)] Or B1 for (\Delta = 900) or rectangle = 600 After 0, allow SC1 for 1750</td>
</tr>
<tr>
<td></td>
<td>(f) 27 cao</td>
<td>2</td>
<td>M1 for their ((total\ distance \div total\ time)) soi</td>
</tr>
<tr>
<td>3</td>
<td>(a) (i) 67.8</td>
<td>3</td>
<td>M1 for (15\times10+45\times15+75\times11+105\times7+135\times5+165\times2) i.e. (150+675+825+735+675+330 = 3390) B1 for (\div 50) (independent of M mark)</td>
</tr>
<tr>
<td></td>
<td>(ii) (90 \leq t &lt; 120)</td>
<td>1</td>
<td>Or clear equivalent</td>
</tr>
<tr>
<td></td>
<td>(b) (i) 100 and 76 and 48</td>
<td>2</td>
<td>B1 for 100 and 76, or for 48</td>
</tr>
<tr>
<td></td>
<td>(ii) Completed pie chart with at least one sector correctly labelled</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(a) (i) 72</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) 83</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iii) 108</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iv) 83</td>
<td>1FT</td>
<td>Their (ii)</td>
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<tr>
<td><strong>(b)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>$4 (\pi)$ cao</td>
<td>2</td>
<td><strong>B1</strong> for $\pi \times 6^2$ or for $\frac{40}{360}$</td>
</tr>
<tr>
<td>(ii)</td>
<td>$12 + \frac{4}{3} \pi$ final answer</td>
<td>2</td>
<td><strong>B1</strong> for $(a =) 12$, or for $(b =) \frac{4}{3}$</td>
</tr>
<tr>
<td>(iii)</td>
<td>8</td>
<td>1 ft</td>
<td></td>
</tr>
<tr>
<td><strong>5 (a)</strong></td>
<td></td>
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</tbody>
</table>
|   | $(\pm) 9.3(0)$ to 9.31 | 4 | **M2** for $BC^2 = 8^2 + 11^2 - 2 \times 8 \times 11 \cos 56$  
Or **M1** for $8^2 + 11^2 \pm (2) \times 8 \times 11 \cos 56$  
**B1** for 86.5 to 86.6 |
| **(b)** |   |   |   |
|   | 122.2 to 122.3 | 3 | **M2** for $(\sin ADC) = \frac{11 \sin 30}{6.5}$, or 57.7 to 57.8, or 58  
Or **M1** for $\frac{\sin ADC}{11} = \frac{\sin 30}{6.5}$ oe |
| **(c)** |   |   |   |
|   | 45.7 to 45.71 | 4 | **B1** for 27.7 to 27.8 seen  
**M1** for $\frac{1}{2} \times 11 \times 8 \times \sin 56 = (36.478...)$  
or for $8 \times \sin 56$ if using heights  
**M1** for $\frac{\text{their stated area}}{\text{their area}_{ABC}} \times 100$  
or $\frac{\text{their height}_{ADC}}{\text{their height}_{ABC}} \times 100$ |
| **6 (a)** |   |   |   |
|   | 325 | 2 | **M1** for $\frac{250}{20500} = \frac{26650}{20500}$  
Or **B1** for 82 seen |
| **(b)** |   |   |   |
|   | 465 and 2.56 to 2.57 | 3 | **B2** for 465 or 2.56 to 2.57 seen  
Or **M1** for 400 $\times$ 1.17 (468) |
| **(c)** |   |   |   |
|   | 170 | 3 | **B2** for 420 or 144.5(0)  
Or **M1** for $357 \div 0.85$  
or $357 - (250 \times 0.85)$ |
## SECTION B

<table>
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<th>Qu.</th>
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<th>Mark</th>
<th>Part Marks</th>
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<tbody>
<tr>
<td>7 (a) (i)</td>
<td>( f^{-1}(x) = \frac{3x - 7}{2} ) oe final answer</td>
<td>2</td>
<td>M1 for ( 3y = 2x + 7 ) or ( 3x = 2y + 7 ) oe</td>
</tr>
<tr>
<td>(ii)</td>
<td>( m = -14 )</td>
<td>2</td>
<td>M1 for ( \frac{2m + 7}{3} = \frac{m}{2} ) oe</td>
</tr>
<tr>
<td>(b) (i)</td>
<td>4, 4 and smooth correct graph drawn</td>
<td>3</td>
<td>B1 for 4 and 4, B1 for 7 correct plots</td>
</tr>
<tr>
<td>(ii)</td>
<td>((y =)\ 6.2\ to\ 6.4)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>line drawn and ( x = -0.7\ to\ -0.8 ) ( x = 2.7\ to\ 2.8 )</td>
<td>2</td>
<td>M1 for correct line drawn</td>
</tr>
<tr>
<td>(iv)</td>
<td>line drawn and ( x = -2.3\ to\ -2.7 )</td>
<td>2</td>
<td>M1 for horizontal line crossing curve at intersection of ( x = 3.5 ) and their curve or for the line ( y = -2.75 )</td>
</tr>
<tr>
<td>8 (a)</td>
<td>321</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>9.43 to 9.44</td>
<td>2</td>
<td>M1 for ( \sin 39 = \frac{y}{15} ) oe</td>
</tr>
<tr>
<td>(c)</td>
<td>19.3 to 19.31</td>
<td>2</td>
<td>B1 for ( \cos 39 = \frac{15}{x} ) oe</td>
</tr>
<tr>
<td>(d) (i)</td>
<td>( X ) marked 12cm from ( A ) on bearing of ( 141^\circ )</td>
<td>2</td>
<td>B1 for either a correct distance or bearing</td>
</tr>
<tr>
<td>(ii)</td>
<td>Correct region shaded</td>
<td>3</td>
<td>B1 for arc, min length 3 cm, radius 6 cm, centre ( A ) B1 for bisector of ( \angle ABC ), min length 3 cm B1 for shading</td>
</tr>
<tr>
<td>(iii)</td>
<td>17.6 to 18.4 dependent on an acceptable ( X ) and ( Y )</td>
<td>2</td>
<td>M1 for ( Y ) established at northern end of shading</td>
</tr>
<tr>
<td>9 (a) (i)</td>
<td>( 2x(2x^2 - 5y) ) final answer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>( (3a + b)(3a - b) ) final answer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>( m = \frac{5}{8}, 0.625 )</td>
<td>2</td>
<td>M1 for ( 7 = 12 - 8m ) or ( \frac{7}{4} = 3 - 2m )</td>
</tr>
<tr>
<td>(c) (i)</td>
<td>( h^2 + (h + 7)^2 = 23^2 ) leading to correct rearrangement</td>
<td>2</td>
<td>M1 for ( h^2 + (h + 7)^2 = 23^2 )</td>
</tr>
<tr>
<td>(ii)</td>
<td>( \frac{h}{2} (h + 7) ) oe isw</td>
<td>1</td>
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<tr>
<td>(iii)</td>
<td>120  cao</td>
<td>1</td>
<td></td>
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</tbody>
</table>
| (iv) | 12.4,  −19.4 | 3 **B2** for one correct solution, or for 12.38 to 12.40 and −19.38 to −19.40  
Or if in form $\frac{p \pm \sqrt{q}}{r}$, **B1** for $p = -7$  
and $r = 2$  
and **B1** for $q = 1009$ or $\sqrt{q} = 31.7$ to 31.8 |
| (v) | 54.76 to 54.8 | 1FT |

**10 (a) (i)** Rotation 90° anticlockwise about (1,1)  
**B1** for Rotation  
**B1** for 90° anticlockwise and about (1,1)  
2 |

(ii) Correct triangle  
**B1** for two correct vertices  
2 |

(iii) Correct triangle  
**B1** for two correct vertices  
2 |

(iv) 24  
**B1** for $4^2\text{ soi}$ or **M1** for $\frac{1}{2} \times 12 \times 4$  
2 |

(b) 2  
1 |

c 4  
1 |

d Rectangle, Rhombus  
**B1** for one correct  
2 |

**11 (a) (i)** $\frac{7}{30}$ or 0.23… or better  
1 |

(ii) $\frac{11}{15}$ cao  
1 |

(iii) (a) All probabilities correctly placed  
**B1** for at least 8 correct  
2 |

(b) $\frac{308}{870}$ or $\frac{154}{435}$ or 0.354  
**M1** for  
\[
\left(\frac{7}{30} \times \frac{6}{29}\right) + \left(\frac{15}{30} \times \frac{14}{29}\right) + \left(\frac{8}{30} \times \frac{7}{29}\right)
\]  
2 |

(b) (i) Correct histogram  
**B2** for at least 3 correct bars  
Or **B1** for at least 1 correct bar or correct frequency densities seen  
3 |

(ii) 61 or 62  
**B1** for 6 or 7 seen  
2 |

(iii) 10  
1 |