

MARK SCHEME for the October/November 2012 series

0581 MATHEMATICS

0581/11

Paper 1 (Core), maximum raw mark 56

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.

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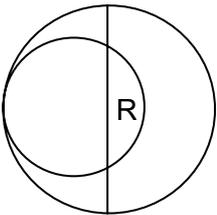
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Abbreviations

- cao correct answer only
- cso correct solution only
- dep dependent
- ft follow through after error
- isw ignore subsequent working
- oe or equivalent
- SC Special Case
- www without wrong working

Qu.	Answers	Mark	Part Marks
1	 cao	1	
2	[0].03	1	
3	(a) 162 (b) obtuse	1 1	
4	(a) 29 000 (b) 60	1 1	
5	(a) 7 (b) 4.5 or 4½	1 1	
6	-16	2	M1 for 4 × 6.5
7	8j - 3k - 8 final answer	2	B1 for two correct terms in final answer or for correct answer seen then spoilt
8	16	2	M1 for 768 ÷ 48
9	[0].852 or $\frac{23}{27}$	2	B1 for 85.56 or $\frac{2139}{25}$
10	(a) 2.3×10^5 (b) [0].00048	1 1	
11	$\frac{17}{\frac{9}{5}}$ or $\frac{17}{9} \div \frac{5}{2}$ $\frac{17}{9} \times \frac{2}{5} = \frac{34}{45}$	M1 M1	$\frac{34}{\frac{18}{45}}$ or $\frac{34}{18} \div \frac{45}{18}$ $\frac{34}{18} \times \frac{18}{45} = \frac{34}{45}$
12	112 or 112.3 to 112.33	3	M2 for $\pi \times 6^2 - \pi \times 0.5^2$ or M1 for $\pi \times 6^2$ or $\pi \times 0.5^2$ seen
13	(a) 3(3y + 4) final answer (b) $a^3 - 7a$ final answer	1 2	B1 for a^3 or $-7a$ in final answer or for correct answer seen then spoilt
14	(a) $\frac{24}{75}$ oe (b) 84	1 2	M1 for $450 \times \frac{14}{75}$ or 6×14

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15	<p>(a) $\frac{20}{45} \times 360 [= 160]$</p> <p>(b) 144</p> <p>(c) Pie chart with at least 2 correct sectors and at least 2 sectors correctly labelled.</p>	<p>1</p> <p>1</p> <p>2</p>	<p>B1 for a sector of 158° to 162° or 142° to 146° or 54° to 58°</p>
16	<p>(a) $\begin{pmatrix} 0 \\ 63 \end{pmatrix}$</p> <p>(b) $\begin{pmatrix} 7 \\ -8 \end{pmatrix}$</p>	<p>1, 1</p> <p>1, 1</p>	
17	<p>(a) </p> <p>(b)</p>	<p>2</p> <p>1</p> <p>1</p>	<p>B1 for correct line, on each side of AB (longer than dash at C)</p> <p>B1 for 2 pairs of intersecting arcs</p> <p>Intention to draw a full correct circle</p> <p>R shaded must be a closed region</p>
18	<p>(a) 3</p> <p>(b) $[y =] 3x - 2$</p> <p>(c) $[y =] 3x$</p>	<p>2</p> <p>1 ft</p> <p>1 ft</p>	<p>M1 for $\frac{10 - -2}{4(-0)}$ or better</p> <p>their (a) $x - 2$</p> <p>follow through gradient from their (b) or their (a)</p>
19	<p>(a) 3.54</p> <p>(b) 44.3</p>	<p>3</p> <p>2</p>	<p>M2 for $\sqrt{(7.4^2 - 6.5^2)}$</p> <p>or M1 for $7.4^2 = AD^2 + 6.5^2$ or better</p> <p>M1 for $\sin [BCD] = \frac{6.5}{9.3}$ or better</p>
20	<p>(a) 10</p> <p>(b) 15 10</p> <p>(c) 9 [km/h]</p> <p>(d) horizontal line from (15 10, 12) to (16 30, 12) line from (16 30, 12) to (17 20, 0)</p>	<p>1</p> <p>1</p> <p>2</p> <p>1</p> <p>1 ft</p>	<p>M1 for $6 \div \frac{2}{3}$ or $6 \div 40$ or better</p> <p>'their 16 30' + 50 minutes</p>