



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**MATHEMATICS**

**0580/03**

Paper 3 (Core)

**For Examination from 2015**

SPECIMEN MARK SCHEME

**2 hours**

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**MAXIMUM MARK: 104**

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The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **5** printed pages and **1** blank page.

**Types of mark**

- M** marks are given for a correct method.  
**A** marks are given for an accurate answer following a correct method.  
**B** marks are given for a correct statement or step.  
**D** marks are given for a clear and appropriately accurate drawing.  
**P** marks are given for accurate plotting of points.  
**E** marks are given for correctly explaining or establishing a given result.  
**SC** marks are given for special cases that are worthy of some credit.

**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  
 art anything rounding to  
 soi seen or implied

Qu.	Answers	Mark	Part Marks
<b>1</b>	<b>(a)</b> 25 000 000 cao	<b>1</b>	
	<b>(b)</b> $0.6 < 65\% < \frac{2}{3}$	<b>1</b>	
	<b>(c)</b> 20%	<b>3</b>	<b>B1</b> for 50 seen <b>M1</b> for $\frac{\text{their } 50}{250} \times 100$ or <b>B1</b> for 0.8 or 80 seen <b>M1</b> for 1 – their 0.8 or 100 – their 80
	<b>(d)</b> <b>(i)</b> 30 <b>(ii)</b> 40	<b>1</b> <b>2</b>	<b>M1</b> for $360 - (90 + 150)$ implied by 120 seen
<b>2</b>	<b>(a)</b> $1.5(0) \times 10^2$ cao	<b>1</b>	
	<b>(b)</b> 100 cao	<b>1</b>	
	<b>(c)</b> 2 hours 15 minutes cao	<b>1</b>	
	<b>(d)</b> 16(:) 25 (pm) or (0)425 <b>pm</b>	<b>2</b>	<b>M1</b> for 2.5 (oe), 2hrs 30 min
	<b>(e)</b> $145 \leq d < 155$	<b>2</b>	<b>B1</b> for each value in correct place



6	<p>(a) (i) Correct construction</p> <p>(ii) <math>47^\circ</math> (45 – 49)</p> <p>(iii) Correct construction</p> <p>(iv) 4 (3.8 – 4.2)</p> <p>(v) Correct construction</p> <p>(vi) Correct region shaded</p> <p>(b) (i) Correct scale drawing of <math>PQ</math></p> <p>(ii) Correct scale drawing of their <math>QR</math></p> <p>(iii) 35 to 37</p> <p>(iv) 264 to 268</p>	<p>2</p> <p>1ft</p> <p>2ft</p> <p>1ft</p> <p>2ft</p> <p>1ft</p> <p>2</p> <p>2</p> <p>1ft</p> <p>1ft</p>	<p><b>B1</b> for two lines or <b>B1</b> for accurate arcs seen or <b>B1</b> for one correct line with two arcs <b>SC1</b> for <math>AC = 6</math> and <math>BC = 7</math> with arcs</p> <p><b>Strict</b> ft their (a)(i)</p> <p>Their (a)(i) <b>B1</b> for accurate arcs no line or <b>B1</b> for accurate line drawn no arcs or <b>B1</b> for accurate line with arcs bisecting another angle</p> <p><b>Strict</b> ft their (iii) with intersection on opposite side of triangle</p> <p><b>B1</b> for accurate arcs no line or <b>B1</b> for accurate line drawn no arcs or <b>B1</b> for accurate line with arcs, bisecting <math>AB</math> or <math>AC</math></p> <p>ft is for boundaries of correct perpendicular bisector of <b>their</b> <math>BC</math> and correct angle bisector of <b>their</b> <math>ABC</math>, with or without arcs</p> <p><b>B1</b> for accurate angle <math>40^\circ</math>, <b>B1</b> for <math>PQ</math> 8cm</p> <p><b>B1</b> for accurate angle <math>160^\circ</math>, <b>B1</b> for <math>QR</math> 6cm</p> <p>Measure <math>\times 5 \pm 1</math>km</p>
7	<p>(a) <math>-6</math> www</p> <p>(b) <math>\frac{3-b}{a}</math> or <math>\frac{3}{a} - \frac{b}{a}</math></p> <p>(c) 3</p> <p>(d) (i) <math>x + x + 2x - 5 + 2x - 5 = 6x - 10</math></p> <p>(ii) 10</p>	<p>3</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>	<p><b>M2</b> for <math>8 = x + 6 + 8</math> or better or <math>-x + 8 = 6 + 8</math> or better <b>M1</b> for <math>2x + 8</math> or <math>3x + 6</math> or <math>3x + 14</math></p> <p><b>B1</b> for <math>3 - b</math> seen or <math>z + \frac{b}{a} = \frac{3}{a}</math></p> <p><b>B1</b> for <math>\frac{54}{2}</math> or better</p> <p><b>SC1</b> for embedded answer ie <math>2 \times 3^3 = 54</math> or <math>2 \times 3 \times 3 \times 3 = 54</math></p> <p><b>M1</b> accept <math>2x + 2(2x - 5)</math> or <math>2(x + 2x - 5)</math> <b>E1</b> dep</p> <p><b>M1</b> for <math>6x - 10 = 50</math></p>
8	<p>(a) Translation <math>\begin{pmatrix} 0 \\ -6 \end{pmatrix}</math></p> <p>(b) Correct line drawn</p> <p>(c) (i) Correct reflection</p> <p>(ii) Correct enlargement</p>	<p>2</p> <p>1</p> <p>1ft</p> <p>2</p>	<p><b>B1</b> for translation <b>B1</b> for column vector</p> <p>Continuous full line. Accept freehand.</p> <p>Their (b)</p> <p><b>B1</b> for any other enlargement scale factor 2</p>
9	<p>(a) <math>3x(x + 4)</math></p> <p>(b) 20</p> <p>(c) <math>6x^7</math></p>	<p>2</p> <p>2</p> <p>2</p>	<p><b>B1</b> for <math>3(x^2 + 4x)</math> or <b>B1</b> for <math>x(3x + 12)</math> or <b>B1</b> for <math>3x(x + 4)</math> seen (if not final answer)</p> <p><b>B1</b> for 8 or 12 seen</p> <p><b>B1</b> for <math>kx^7</math> or for <math>6x^k</math>, <math>k \neq 0</math></p>

<b>10</b>	<p>(a) 5.4 cao</p> <p>(b) 5</p> <p>(c) 50</p> <p>(d) 134</p> <p>(e) 301.5(0)</p>	<p><b>3</b></p> <p><b>2</b></p> <p><b>1ft</b></p> <p><b>3ft</b></p> <p><b>1ft</b></p>	<p><b>M1</b> for <math>2^2 + 5^2 (= x^2)</math> implied by 29  <b>A1</b> 5.38(51..) or <math>\sqrt{29}</math> or 5.39  <b>B1</b> indep for rounding their answer to 1 decimal place</p> <p><b>M1</b> for <math>0.5 \times 5 \times 2</math> oe</p> <p><math>10 \times</math> their <b>(b)</b></p> <p><b>M2</b> for <math>2 \times</math> their <b>(b)</b> + <math>10 \times</math> their <b>(a)</b> + <math>2 \times 10</math> + <math>5 \times 10</math> or better  <b>M1</b> for any 3 faces correct</p> <p>Their <b>(d)</b> <math>\times</math> 2.25</p>
<b>11</b>	<p>(a) Correct shape drawn</p> <p>(b) 16, 21, 26</p> <p>(c) 41</p> <p>(d) <math>5n + 1</math></p> <p>(e) 501</p> <p>(f) 13</p>	<p><b>1</b></p> <p><b>3</b></p> <p><b>1</b></p> <p><b>2</b></p> <p><b>1ft</b></p> <p><b>2ft</b></p>	<p><b>B1</b> for each  <b>SC1</b> “their 16” + 5  <b>SC1</b> “their 21” + 5</p> <p><b>B1</b> for <math>5n</math>, <b>B1</b> for +1</p> <p>Their <b>(d)</b> if linear</p> <p>Their <b>(d)</b> if linear  <b>B1</b> for their <b>(d)</b> = 66</p>

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