

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
**International General Certificate of Secondary Education**

## **MARK SCHEME for the May/June 2007 question paper**

### **0580/0581 MATHEMATICS**

**0580/01 and 0581/01** 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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

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Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0580/0581	01

1		2	B1	
2		$0.58 < \frac{3}{5} < 62(\%)$	B1	Accept answer in alternative form provided equivalence is clear.
3		7 (h) 55 (min)	B1	
4		24	B1	
5		Negative	B1	
6	(a)	Jan	B1	Not just –10.2 but ignore if included.
	(b)	26(.0)	B1	Allow 26
7		145 + 180 or 360 their <b>acute</b> angle at L  325	M1  A1	Must be clearly indicated in working or diagram.
<b>[9]</b>				
8	(a)	$\begin{pmatrix} 1 \\ 3 \end{pmatrix}$	B1	SC1 for <b>both</b> answers with components of (a) and coordinates of (b) reversed.
	(b)	(–2, –1)	B1	i.e. $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ for (a) and (–1, –2) for (b)
9		$2x^2 + 3xy$ or $x(2x + 3y)$	B2	B1 for $3x^2 - x^2 + 3xy$ or $x(3x - x + 3y)$ seen. SC1 for answer $2x^2 - 3xy$ or $2x^2$ seen in final answer of 2 terms.
10		75°	B2	B1 for 25° or 50° seen on diagram or clear in working that angle <i>BCD</i> is 25° or angle <i>DCE</i> is 50°. Minimum - arc seen in diagram.
11	(a)	Equilateral	B1	Not equal
	(b)	(Triangular) prism	B1	If qualified must be triangular (or triangle).
<b>[8]</b>				

<b>Page 3</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2007</b>	<b>0580/0581</b>	<b>01</b>

<b>12</b>		$(y =) 3x - 1$	B2	B1 for $mx - 1$ or $3x + c$ where $m$ and $c$ are integers with $m \neq 0$ and $c \neq 5$ .
<b>13</b>	(a) (b) (c)	10 3 2	B1 B1 B1	SC2 for $4^{10}$ , $2^3$ and $5^2$ . SC1 for two of the above
<b>14</b>	(a)  (b)	$250 \div 1.19886$  208 to 210.084.....  1.20	M1  A1  B1	Allow division by 1.19 to 1.2   One and only one zero is essential
<b>15</b>		$180 - \frac{360}{6}$ (x =) 120 (y =) 150	M1 A1 B1ft	Alt. $(2 \times 6 - 4) \times 90 \div 6$ oe  360 – (90 + their $x$ ) ft if positive ww. reversed answers 2 marks. Alt. (y first) $\frac{360}{6} + 90$ M1 150 A1 (x=) 120 B1ft
<b>16</b>	(a)  (b)	$15 \times 5.40 + 5 \times 3 - 80$ 16  20	M1 A1  B1ft	ft their (a) $\div 80 \times 100$ (provided profit >0)  If 0 scored in parts (a) <b>and</b> (b) allow SC1 for 96 seen
<b>[14]</b>				

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0580/0581	01

17	(a)	$5.1 \times 10^8$	B2	B1 for $5.1 \times 10^n$ where $n$ is an integer greater than 1 Calculator form; penalise 1 mark each form. May revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$
	(b)	$29.4 \times$ their (a)/ 100 art $1.5 \times 10^8$ oe	M1 A1cao	
18	(a)	$(AB^2 = ) 1200^2 + 900^2$ 1500	M1 A1	Indicated by 2250000 seen Allow art 1500 if sin or cos used and (b) done before (a). For sin or cos method allow their (a) for M1 only.
	(b)	$\tan (=) 900/1200$ oe art 36.9	M1 A1cao	
19	(a)	263	B1	B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
	(b)	Correct construction with arcs	B2	
	(c)	109.5	B1	
<b>[12]</b>				
20	(a) (i)	50	B1	Indicated by answer of 43 to 45 or calculation shown. (Total = 659)  Must be at least 7 values  Two very low values etc. Must not refer to extreme high values.
	(a) (ii)	Sum divided by 15	M1	
	(a) (iii)	43.9(3.....) Attempt to order estimates 47	A1 M1 A1	
	(b)	(Low) Extreme values oe	B1	
21	(a)	30 + 60 (seconds) 90 (seconds)	M1 A1	SC1 for 30 or 60 seen.  Any clear indication of section Allow 1270 to 1280 Also indicated by 310 or (400 – their (a)).  ft correct to 3 significant figures.
	(b)	D to E	B1	
	(c) (i)	1280(m)	B1	
	(c) (ii)	400 used	B1	
		their (c)(i) divided by 400 (only) 3.2	M1	
			A1ft	
<b>[13]</b>				

<b>Page 5</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2007</b>	<b>0580/0581</b>	<b>01</b>

<b>1</b>		5	B1	
<b>2</b>		$0.79 < \frac{4}{5} < 81\%$	B1	Accept answer in alternative form provided equivalence is clear.
<b>3</b>		7 (h) 45 (min)	B1	
<b>4</b>		24	B1	
<b>5</b>		Negative	B1	
<b>6</b>	<b>(a)</b>	Jan	B1	Not just –10.2 but ignore if included.
	<b>(b)</b>	13.2	B1	Allow 13.2
<b>7</b>		125 + 180 or 360 their <b>acute</b> angle at L  305	M1  A1	Must be clearly indicated in working or diagram.
<b>[9]</b>				
<b>8</b>	<b>(a)</b>	$\begin{pmatrix} 1 \\ 3 \end{pmatrix}$	B1	SC1 for <b>both</b> answers with components of (a) and co-ordinates of (b) reversed. i.e. $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ for (a) and $(-1, -2)$ for (b)
	<b>(b)</b>	$(-2, -1)$	B1	
<b>9</b>		$3x^2 + 2xy$ or $x(3x + 2y)$	B2	B1 for $4x^2 - x^2 + 2xy$ or $x(4x - x + 2y)$ seen. SC1 for answer $3x^2 - 2xy$ or $3x^2$ seen in final answer of 2 terms.
<b>10</b>		$80^\circ$	B2	B1 for $35^\circ$ or $45^\circ$ seen on diagram or clear in working that angle $BCD$ is $35^\circ$ or angle $DCE$ is $45^\circ$ . Minimum - arc seen in diagram.
<b>11</b>	<b>(a)</b>	Equilateral	B1	Not equal.
	<b>(b)</b>	(Triangular) prism	B1	If qualified must be triangular (or triangle).
<b>[8]</b>				

<b>Page 6</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2007</b>	<b>0580/0581</b>	<b>01</b>

<b>12</b>		$(y =) 2x - 3$ oe	B2	B1 for $mx - 3$ or $2x + c$ where $m$ and $c$ are integers with $m \neq 0$ and $c \neq 3$
<b>13</b>	(a) (b) (c)	9 5 2	B1 B1 B1	SC2 for $3^9$ , $2^5$ and $6^2$ . SC1 for two of the above
<b>14</b>	(a)  (b)	$270 \div 1.19886$  225 to 226.891  1.20	M1  A1  B1	Allow division by 1.19 to 1.2   One and only one zero is essential.
<b>15</b>		$180 - \frac{360}{6}$ ( $x =$ ) 120 ( $y =$ ) 150	M1 A1 B1ft	Alt. $(2 \times 6 - 4) \times 90 \div 6$  360 – (90 + their $x$ ) ft if positive ww. reversed answers 2 marks. Alt. ( $y$ first) $\frac{360}{6} + 90$ M1 150 A1 ( $x =$ ) 120 B1ft
<b>16</b>	(a)  (b)	$15 \times 5.80 + 5 \times 3 - 90$ 12 13(.3.....)	M1 A1 B1ft	ft their (a) $\div 90 \times 100$ (provided profit $> 0$ )  If 0 scored in parts (a) <b>and</b> (b) allow SC1 for 102 seen.
				<b>[14]</b>

Page 7	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0580/0581	01

17	(a)	$5.1 \times 10^8$	B2	B1 for $5.1 \times 10^n$ where $n$ is an integer greater than 1. Calculator form; penalise 1 mark each form. May revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$
	(b)	$29.4 \times$ their (a)/ 100 art $1.5 \times 10^8$ oe	M1 A1cao	
18	(a)	$(AB^2 = ) 1100^2 + 800^2$ art 1360	M1 A1	Indicated by 1850000 seen.  For sin or cos method allow their (a) for M1 only.
	(b)	$\tan (=) (800/1100)$ oe 36 to 36.03	M1 A1cao	
19	(a)	276	B1	B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
	(b)	Correct construction with arcs	B2	
	(c)	119.5	B1	
<b>[12]</b>				
20	(a) (i)	50	B1	Indicated by answer of 43 to 45 or calculation shown. (Total = 662)  Must be at least 7 values  Two very low values etc. Must not refer to extreme high values.
	(a) (ii)	Sum divided by 15	M1	
	(a)(iii)	44.1(3.....) Attempt to order estimates 48	A1 M1 A1	
	(b)	(Low) Extreme values oe	B1	
21	(a)	30 + 60 (seconds) 90 (seconds)	M1 A1	SC1 for 30 or 60 seen.  Any clear indication of section. Allow 1270 to 1280 Also indicated by 310 or (400 – their (a)).  ft correct to 3 significant figures.
	(b)	D to E	B1	
	(c) (i)	1280 (m)	B1	
	(c) (ii)	400 used	B1	
		their (c)(i) divided by 400(only) 3.2	M1 A1ft	
<b>[13]</b>				