### **Location Entry Codes**

Www.PapaCanibridge.com From the June 2007 session, as part of CIE's continual commitment to maintaining best practice in assessment. CIE has begun to use different variants of some question papers for our most popular assessments with extremely large and widespread candidature, The question papers are closely related and the relationships between them have been thoroughly established using our assessment expertise. All versions of the paper give assessment of equal standard.

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The content assessed by the examination papers and the type of questions are unchanged.

This change means that for this component there are now two variant Question Papers. Mark Schemes and Principal Examiner's Reports where previously there was only one. For any individual country, it is intended that only one variant is used. This document contains both variants which will give all Centres access to even more past examination material than is usually the case.

The diagram shows the relationship between the Question Papers, Mark Schemes and Principal Examiner's Reports.

### Mark Scheme **Question Paper** Principal Examiner's Report Introduction Introduction Introduction **First variant Question Paper** First variant Mark Scheme First variant Principal Examiner's Report Second variant Question Paper Second variant Mark Scheme Second variant Principal Examiner's Report

### Who can I contact for further information on these changes?

Please direct any questions about this to CIE's Customer Services team at: international@cie.org.uk



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.

CIE is publishing the mark schemes for the May/June 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page	e 2	Mark Schem	ne	Syllabus
		IGCSE – May/Jun	ne 2007	0580/0581
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 include
	(b)	26(.0)	B1	Allow –26
7		145 + 180 or 360 – their <b>acute</b> angle at L	M1	Must be clearly indicated in worki
		325	A1	
8	(a)	(-1)	B1	SC1 for <b>both</b> answers with
				components of (a) and coordinates (b) reversed
	(b)	(-2, -1)	B1	i.e. $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ for (a) and (-1, -2) for (b)
9		$2x^2 + 3xy \text{ or } x(2x + 3y)$	B2	B1 for $3x^2 - x^2 + 3xy$ or
				x(3x-x+3y) seen.
				SC1 for answer $2x^2 - 3xy$ oe or $2x^2$ seen in final answer of 2 ter
10		75°	B2	B1 for 25° or 50° seen on diagram
				clear in working that angle $BCD$ is $25^{\circ}$ or angle $DCE$ is $50^{\circ}$ .
11				Minimum - arc seen in diagram.
11	(a) (b)	Equilateral (Triongular) prices	BI	Not equal If qualified must be trien sular
	(0)	(Inangular) prism	BI	(or triangle).

First variant Mark Scheme

t vari	iant Ma	rk Scheme		www.xtrapapers.com
Page	e 3	Mark Schem	е	Syllabus er
		IGCSE – May/Jun	e 2007	0580/0581
				an.
12		(y =) 3x - 1	B2	B1 for $mx - 1$ or $3x + c$ where m and
				c are integers with $m \neq 0$ and
				c≠5.
13	(a)	10	B1	SC2 for $4^{10}$ , $2^3$ and $5^{-2}$ .
	(b)	3	B1	SC1 for two of the above
	(c)	-2	B1	
14	(a)	250 ÷ 1.19886	M1	Allow division by 1.19 to 1.2
		208 to 210.084	A1	
	(h)	1.20	D1	One and only one zero is assential
	(0)	1.20	DI	One and only one zero is essential
15		$180 - \frac{360}{3}$	M1	Alt. $(2 \times 6 - 4) \times 90 \div 6$ oe
		6	AI B1ff	360 - (90 + their  r) ft if positive
		(x =) 120 (y =) 150	Din	ww. reversed answers 2 marks.
		(7)150		$A1t$ (y first) $\frac{360}{+90}$ + 90 M1 150 A1
				$\begin{bmatrix} \text{All. (f)} & \text{IIISI} \end{bmatrix} = \begin{bmatrix} 6 \\ 6 \end{bmatrix} = \begin{bmatrix} 50 \\ \text{MII} \end{bmatrix} = \begin{bmatrix} 50 \\ \text{MII} \end{bmatrix} = \begin{bmatrix} 50 \\ \text{MII} \end{bmatrix}$
1(		15 5 40 + 5 2 00		(x=) 120 B1ft
10	(a)	$15 \times 5.40 + 5 \times 3 - 80$		
			211	
	(b)	20	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
				<u> </u>
L				[* ·]

# First variant Mark Scheme

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# Mark Scheme IGCSE – May/June 2007

				1	Cullation 2
Page	94	Mark Scheme	2007		5yliabus
		1000L - May/Julie /	2007		0300/0301
17	(a)	5.1 ×10 <sup>8</sup>	B2	B1 for 5 greater	$5.1 \times 10^n$ where <i>n</i> is an integer than 1 tor form: penalise 1 mark
	(b)	$29.4 \times \text{their (a)}/100$ art $1.5 \times 10^8$ oe	M1 A1cao	each for May rev Answer standard If M0, S	wert to given value. • does not need to be in d form. (e.g. 149940000) SC1 for $3.6 \times 10^8$
18	(a)	$(AB^2 = ) 1200^2 + 900^2$ 1500	M1 A1	Indicate Allow a	ed by 2250000 seen art 1500 if sin or cos used and
	(b)	tan (=) 900/1200 oe art 36.9	M1 A1cao	For sin for M1	or cos method allow their (a) only.
19	(a) (b)	263 Correct construction with arcs	B1 B2	B1 with SC1 for	nout arcs, accuracy 2mm
	(c)	109.5	B1	arcs.	
					[12]
20	(a) (i) (a) (ii)	50 Sum divided by 15	B1 M1	Indicate calculat (Total =	ed by answer of 43 to 45 or ion shown. = 659)
	(a) (iii)	43.9(3) Attempt to order estimates 47	Al M1 A1	Must be	e at least 7 values
	(b)	(Low) Extreme values oe	B1	Two ver Must no values.	ry low values etc. ot refer to extreme high
21	(a)	30 + 60 (seconds) 90 (seconds)	M1 A1	SC1 for	· 30 or 60 seen.
	(b) (c) (i) (c) (ii)	D to E 1280(m) 400 used	B1 B1 B1	Any cle Allow 1 Also inc	ear indication of section 270 to 1280 dicated by
		their (c)(i) divided by 400 (only) 3.2	M1	310 or (	400 – their (a)).
			A1ft	ft correc	ct to 3 significant figures.
					[13]

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### Mark Scheme IGCSE – May/June 2007

age	e 5	Mark Schem	9		Syllabus
		IGCSE – May/June	e 2007		0580/0581
1		-5	B1		
2		$0.79 < \frac{4}{5} < 81\%$	B1	Accept a provided	nswer in alternative form equivalence is clear.
3		7 (h) 45 (min)	B1		
4		24	B1		
5		Negative	B1		
6	(a)	Jan	B1	Not just -	-10.2 but ignore if included
	(b)	13.2	B1	Allow –1	3.2
7		125 + 180  or	M1		
		360 – their <b>acute</b> angle at L		Must be or diagra	clearly indicated in working
		305	A1	or drugru	
8	(a)	$\begin{pmatrix} -1\\ 3 \end{pmatrix}$	B1	SC1 for l compone (b) rever	<b>both</b> answers with ants of (a) and co-ordinates of sed.
	(b)	(-2, -1)	B1	i.e. $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$	for (a) and (-1, -2) for (b)
9		$3x^2 + 2xy$ or $x(3x + 2y)$	B2	B1 for $4x$ x(4x - x - x)	$x^{2} - x^{2} + 2xy$ or + 2y)seen.
				SC1 for a $3x^2$ seen	answer $3x^2 - 2xy$ oe or in final answer of 2 terms.
10		80°	B2	B1 for 35 clear in v 35° or an Minimur	$5^{\circ}$ or 45° seen on diagram of vorking that angle <i>BCD</i> is gle <i>DCE</i> is 45°. n - arc seen in diagram.
11	(a) (b)	Equilateral (Triangular) prism	B1 B1	Not equa If qualifi (or triang	l. ed must be triangular gle).

Second variant Mark Scheme

Page 6

ond v	ariant N	Mark Scheme		www.xtrapapers.com
Page	e 6	Mark Sche IGCSE – May/Ju	me ine 2007	Syllabus er 0580/0581
		· · · · · · · · · · · · · · · · · · ·		Can.
12		(y =) 2x - 3 oe	B2	B1 for $mx - 3$ or $2x + c$ where <i>m</i> and <i>c</i> are integers with $m \neq 0$ and $c \neq 3$
13	(a) (b) (c)	9 5 -2	B1 B1 B1	SC2 for 3 <sup>9</sup> , 2 <sup>5</sup> and 6 <sup>-2</sup> . SC1 for two of the above
14	(a)	270 ÷ 1.19886 225 to 226.891	M1 A1	Allow division by 1.19 to 1.2
	(b)	1.20	B1	One and only one zero is essential.
15		$   \begin{array}{r}     180 - \frac{360}{6} \\     (x =) 120 \\     (y =) 150   \end{array} $	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. ( <i>y</i> first) $\frac{360}{6} + 90$ M1 150 A1 ( <i>x</i> =) 120 B1ft
16	(a) (b)	$ \begin{array}{c} 15 \times 5.80 + 5 \times 3 - 90 \\ 12 \\ 13(.3) \end{array} $	M1 A1 B1ft	ft their (a) $\div$ 90 × 100 (provided profit >0) If 0 scored in parts (a) <b>and</b> (b) allow SC1 for 102 seen.

### Second variant Mark Scheme

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### Mark Scheme IGCSE – May/June 2007

(a) $5.1 \times 10^8$ B2B1 for $5.1 \times 10^n$ where <i>n</i> 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 $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art $1360$ (b)M1 $1an (=) (800/1100)$ oe $36$ to $36.03$ M1 A1 m1 A1caoIndicated by 1850000 seen. For sin or cos method allow their (a) for M1 only.(a) $276$ (b)B1 Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(a) $5.1 \times 10^8$ B2B1 for $5.1 \times 10^n$ where <i>n</i> 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 $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art $1360$ tan (=) (800/1100) oe $36$ to $36.03$ M1 A1 A1 A1 A1caoIndicated by 1850000 seen.(a) $276$ Correct construction with arcsB1 B2 B1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(b) $29.4 \times \text{their (a)}/100$ art $1.5 \times 10^8 \text{ oe}$ M1 A1 caoM1 A1 caoGamma Calculation 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 $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art $1360$ tan (=) (800/1100) oe $36$ to $36.03$ M1 A1 A1 caoIndicated by 1850000 seen. For sin or cos method allow their (a) for M1 only.(a) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(b) $29.4 \times \text{their (a)}/100$ art $1.5 \times 10^8 \text{ oe}$ M1 AlcaoCalculator 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 $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 A1 M1 A1caoIndicated by 1850000 seen.(b) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(b) $29.4 \times \text{their (a)}/100$ art $1.5 \times 10^8 \text{ oe}$ M1 A1caoM1 A1caoM2 May revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 A1 M1 A1caoIndicated by 1850000 seen.(b) $276$ to 36 to 36.03B1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(b) $29.4 \times \text{their (a)}/100$ art $1.5 \times 10^8 \text{ oe}$ M1 AlcaoMay revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 Al AlcaoIndicated by 1850000 seen.(b) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
art $1.5 \times 10^8$ oeM1 Al caoAnswer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 Al M1 Al caoIndicated by 1850000 seen.(b) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
A1caostandard form. (e.g. 149940000) If M0, SC1 for $3.6 \times 10^8$ (a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 A1 A1caoIndicated by 1850000 seen.(b) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 A1 M1 A1caoIndicated by 1850000 seen.(b) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
(a) $(AB^2 = ) 1100^2 + 800^2$ art 1360 tan (=) (800/1100) oe 36 to 36.03M1 A1 M1 A1 caoIndicated by 1850000 seen.(b) $(a)$ Correct construction with arcsM1 M1 A1 caoFor sin or cos method allow their (a) for M1 only.(a) $276$ Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
<ul> <li>(b) art 1360 tan (=) (800/1100) oe 36 to 36.03</li> <li>(a) 276 (b) Correct construction with arcs</li> <li>(b) 110.5</li> <li>(c) 110.</li></ul>
(b) $tan (=) (800/1100) oe \\ 36 to 36.03$ M1 A1caoFor sin or cos method allow their (a) for M1 only.(a)276 Correct construction with arcsB1 B2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
<ul> <li>(b) 36 to 36.03</li> <li>A1cao for M1 only.</li> <li>(a) 276 (b) Correct construction with arcs</li> <li>B1 B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.</li> </ul>
<ul> <li>(a) 276</li> <li>(b) Correct construction with arcs</li> <li>(c) 110.5</li> <li>(c) 110.5</li></ul>
<ul> <li>(a) 276</li> <li>(b) Correct construction with arcs</li> <li>(c) 110.5</li> <li>(c) 110.5</li></ul>
(b)Correct construction with arcsB2B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
SC1 for 'correct' mirror image with arcs.
arcs.
$(-)$ $110 \overline{c}$ $D1$
(c) 119.5 BI
[12]
(a) (i) 50 B1
(a) (ii) Sum divided by 15 M1 Indicated by answer of 43 to 45 or
calculation shown.
(Total = 662)
44.1(3) A1
(a)(iii) Attempt to order estimates M1 Must be at least 7 values
48 A1
(b) (Low) Extreme values oe B1 Two very low values etc.
Must not refer to extreme high values.
(a) 30 + 60 (seconds) M1 SC1 for 30 or 60 seen.
90 (seconds) A1
(b) D to E B1 Any clear indication of section.
(c)         (i)         1280 (m)         B1         Allow 1270 to 1280
(c) (ii)400 usedB1Also indicated by
310 or (400 – their (a)).
their (c)(i) divided by 400(only) M1
3.2
A1ft ft correct to 3 significant figures.
[13]

