Location Entry Codes

UNIVERSITY of CAMBRIDGE
International Examinations

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.

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.

Question Paper	Mark Scheme	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 October/November 2007 question paper

0580 and 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 October/November 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Abbreviations

In addition to those already seen the following may crop up.

cao – correct answer only

ww – without working

www – without wrong working

oe – or equivalent

soi – seen or implied

bod – benefit of doubt

art – anything rounding to

isw – ignore subsequent working

ft – follow through

oor – out of range

isr – ignore subsequent rounding

rot – rounded or truncated

mog – marks on graph

Question	Answers	Mark	Notes
1	–13	1	Not 13–
2	($) 10	2	M1 for 35 ÷ (5 + 2) or better. SC1 for ($) 25 only or 25:10 or 25 and 10 in the answer space.
3	(x =) – 1	2	M1 for 1 – 4 = x + 2x oe Not embedded unless x = –1 seen.
4	60	2	M1 for 52.50 ÷ 0.875. SC1 for answers 59.659 rot or 60.3448 rot (from rounding 0.875 to 0.88 or 0.87.)
5	2x(2y – 1) final answer	2	SC1 for x(4y – 2) or 2(2xy – x) or 2x(2y +1) Or SC1 for 2x(2y – 1) **not** as final answer.
6	art39.8	2	M1 for tan p = $\frac{25}{30}$ oe
7	1250 (≤ d <) 1350	2 **13**	1 mark for each in correct order
8	**(a)** Two correct lines of symmetry, No extra lines **(b)** Parallelogram	1 1	Lines must be a minimum of length and height of the figure.
9	**(a)** 15 **(b)** $\frac{11}{9}$ oe $\frac{22}{18} - \frac{15}{18} = \frac{7}{18}$ oe	1 B1 E1	Eg $\frac{66}{54}$ Allow $\frac{9}{9} + \frac{2}{9}$ or better Must be finally reduced to $\frac{7}{18}$
10	(a) 30 (b) 12	1 2ft	M1 for 360 ÷ either 30 or their (a) ft. answer only when calculation gives an integer > 2
11	art38.3	3 **11**	M1 for $\frac{d}{50}$ = cos (180 – 140) oe soi M1dep. for (d =) 50 cos (180 – 140) oe SC1 for 32.1 (distance east)

Question	Answers	Mark	Notes
12	**(a)** –3 **(b)** (y =) $-3x + 3$ Final answer	1 2ft	B1 for their (a)x or +3 as intercept seen in the equation. Not $y = 3$
13	**(a)** 55 or art 54.6 **(b)** 15	2 2	M1 for 131 ÷ 240(× 100) implied by 54.5 M1 for 6.25 ÷ 100 × 240 SC1 for answer 225
14	**(a)** art 25.1 www **(b)** 61 (Can be on diagram)	2 2	M1 for π × 8 or 2π × 8 ÷ 2 implied by answer of 25 M1 for 90 – 29 or 180 – 90 – 29 SC1 for angle Q = 90° soi
15	**(a)** 1 **(b)** x^6 **(c)** $\frac{x^2}{9}$	1 1 2 **15**	M1 for $\frac{1}{(\frac{3}{x})^2}$ or better. E.g. $(\frac{x}{3})^2$ B1 if answer contains x^2 as numerator or 3^2(or 9) as denominator.
16	**(a)(i)** 18 000 **(ii)** 1.8×10^4 **(b)** 0.056	1 1 ft 2	1.7598×10^4 gets 0 B1 for 0.06 or 0.0565 or 0.05649 or 0.057 seen SC1 for final answer 0.0560(0)
17	**(a)** ($) 16.2(0) **(b)** ($) 16.3(2) or 16.3(0)	2 2	M1 for (200 × 4.05 × 2)/100 SC1 for 216.2(0) M1 for $200(1.04)^2 - 200$oe SC1 for 216.3(2). SC1 for both 8.(00) and 8.3(2) seen
18	**(a)(i)** Vector **KL** drawn **(ii)** (0,2) **(b)** (1, –1)	1 1 ft 2 **12**	If arrow shown, it must be correct. Only ft their point if labelled L. M1 for vector **PS** drawn or for **(PS** =) $\begin{pmatrix}4\\2\end{pmatrix}$ SC1 Point S on diagram at (1, –1)
19	**(a)(i)** 60 (m/min) **(ii)** 3.6 (km/h) **(b)** 3 (km/h)	1 2cao 2 **5**	M1 for their (a) × 60 ÷ 1000 or 1.2 ÷ 0.33 or better M1 for total distance(figs 15) ÷ total time Values seen, but independent of units.

Question	Answers	Mark	Notes
1	–12	1	Not 12–
2	($) 25	2	M1 for 45 ÷ (4 + 5) or better SC1 for ($) 20 only or 20:25 or 25 and 20 in the answer space.
3	(x =) – 2	2	M1 for 2 – 10 = x + 3x oe Not embedded unless x = –2 seen.
4	80	2	M1 for 70.80 ÷ 0.885 SC1 for answers 79.55 rot or 80.45 rot from rounding 0.885 to 0.89 or 0.88)
5	2q(p – 2) final answer	2	SC1 for q(2p – 4) or 2(pq – 2q) or 2q(p + 2) or SC1 for 2q(p – 2) **not** as final answer.
6	art34.5	2	M1 for tan p = $\frac{22}{32}$ oe Grads 38.3 or rads 0.6023 check for M1 A0 only.
7	8750 (≤ d <) 8850	2 **13**	1 mark for each in correct order SC1 for fully correct but reversed
8	**(a)** Two correct lines of symmetry. No extra lines. **(b)** Parallelogram	1 1	Lines must be a minimum of length and height of the figure.
9	**(a)** 15 **(b)** $\frac{17}{12}$ oe $\frac{34}{24} - \frac{15}{24} = \frac{19}{24}$ oe	1 B1 E1	Eg $\frac{68}{48}$ Allow $\frac{12}{12} + \frac{5}{12}$ or better Must be finally reduced to $\frac{19}{24}$
10	**(a)** 20 **(b)** 18	1 2ft **11**	M1 for 360 ÷ either 20 or their (a) Ft answer only when calculation gives an integer >2
11	art34.6 www	3	M1 for $\frac{d}{40}$ = cos (180 – 150) oe soi M1dep for (d =) 40 cos (180 – 150) oe SC1 for 20 (distance east) Grads 35.6 or rads 6.17 check M2 A0 only.

Question	Answers	Mark	Notes
12	**(a)** –2 **(b)** (y =) $-2x + 4$ Final answer.	1 2ft	Allow $\frac{-2}{1}$ and $\frac{-4}{2}$ or $\frac{2}{-1}$ or $\frac{4}{-2}$ B1 for their (a) x or +4 as intercept seen in the equation. Not $y = 4$
13	**(a)** 48 or art 47.8 **(b)** 12	2 2	M1 for 153 ÷ 320 (× 100) M1 for 3.75 ÷ 100 × 320 SC1 for answer 308
14	**(a)** art 40.8 or art 40.9 **(b)** 57	2 2	M1 for π × 13 or 2π × 13 ÷ 2 implied by answer of 41 M1 for 90 – 33 or 180 – 90 – 33 SC1 for angle Q = 90° soi
15	**(a)** 1 **(b)** y^8 **(c)** $\frac{p^2}{25}$	1 1 2 **15**	M1 for $\frac{1}{\left(\frac{5}{p}\right)^2}$ or better. E.g. $\left(\frac{p}{5}\right)^2$ B1 if answer contains p^2 as numerator or 5^2(or 25) as denominator
16	(a)(i) 16 000 (ii) 1.6×10^4 (b) 0.0037	1 1 ft 2	1.5583×10^4 gets 0. B1 for 0.004 or 0.00372 or 0.003718 seen. SC1 final answer 0.00370(0)
17	**(a)** ($) 48.4(0) **(b)** ($) 49.4(4) or 49.4(0)	2 2	M1 for (400 × 6.05 × 2)/100 SC1 for 448.4(0) M1 for $400(1.06)^2 - 400$ SC1 for 449.44 SC1 for 24 and 25.4(4) seen
18	**(a)(i)** Vector **KL** drawn correctly **(ii)** (0, 2) **(b)** (2, 0)	1 1 ft 2 **12**	If arrow shown, it must be correct Allow L not labelled. Only ft their point if labelled L. M1 for vector **PS** drawn or for (**PS** =) $\begin{pmatrix}6\\4\end{pmatrix}$ Ignore 'fraction' line. SC1 Point S on diagram at (2, 0)
19	**(a)(i)** 45 (m/min) **(ii)** 2.7 (km/h) **(b)** 3.2 (km/h)	1 2cao 2 **5**	M1 for their (a) × 60 ÷ 1000 or 0.9 ÷ 0.33 or better M1 for total distance(figs 16) ÷ total time Values seen, but independent of units.