UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/02 Paper 2 (Extended), maximum raw mark 40

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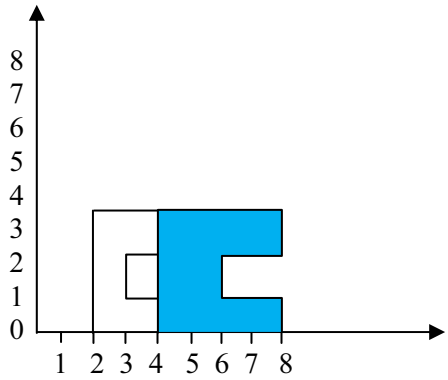
- **M** marks are given for a correct method.
- **A** marks are given for an accurate answer following a correct method.
- **B** marks are given for a correct statement or step.
- **D** marks are given for a clear and appropriately accurate drawing.
- **P** marks are given for accurate plotting of points.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

- ft follow through
- oe or equivalent
- soi seen or implied
- www without wrong working

1	$3.6(0) \times 10^4$	B1	[1]
2 (a) (i)	1	B1	
(ii)	6	B1	Accept –6 or ±6
(b)	7	B1	[3]
3	$3y(x - 2y)(x + 2y)$	B2	M1 for $3y(x^2 - 4y^2)$, $(x - 2y)(3xy + 6y^2)$, $(x + 2y)(3xy - 6y^2)$ or better seen [2]
4	$a = 4$, $b = 2$	B1 B1	After B0 B0 award B1 for $4\sin 2x$ seen and not spoilt. [2]
5 (a)	$(2x - 3)(x + 2)$ oe	B2	If B0 award SC1 for signs reversed
(b)	$x = 3/2$ or $x = -2$ oe	B1ft B1ft	ft dependent on **(a)** in the form $(ax + b)(cx + d)$ with a, b, c, d all non-zero [4]
6 (a)	72	B2	If B0 award M1 for $\log(2^3 \times 3^2)$ or $\log 2^3 + \log 3^2$ or better seen e.g. log72
(b)	2	B1	[3]
7 (a)	$\begin{pmatrix}12\\1\end{pmatrix}$	B1 B1	If B0 B0 award M1 for $2\begin{pmatrix}5\\1\end{pmatrix} - \frac{1}{2}\begin{pmatrix}-4\\2\end{pmatrix}$ or better
(b)	$\sqrt{20}$ or $2\sqrt{5}$ seen	B2	If B0 award M1 for $(\pm 4)^2 + 2^2$ or better seen [4]
8 (a)	$\sqrt{2}$	B2	If B0 award B1 for $6\sqrt{2}$ or $5\sqrt{2}$ seen
(b)	$2 + \sqrt{3}$ or $\frac{2+\sqrt{3}}{1}$	B2	If B0 then M1 for $\times \frac{2+\sqrt{3}}{2+\sqrt{3}}$ seen [4]

9 (a)	rotation, centre (0, 0) oe 90° anticlockwise oe	B1 B1 B1	Award B0 if more than one transformation given.
(b)		P2	If P0 award P1 for stretch y-axis invariant line scale factor $k > 0$ ($k \neq 1$) , or for stretch x-axis invariant line scale factor 2, or for any horizontal translation of the correct solution. [5]
10 (a)	35°	B1	
(b)	125°	B1	
(c)	15°	B1	[3]
11 (a)	$y = -2x + 4$ oe	B2	After B0 award B1 for $y = mx + 4$ ($m \neq 0$) or for $y = -2x + c$ or award
(b)	gradient of perp = $\frac{1}{2}$	B1 ft	
	mid point = (1, 2)	B1	
	$2 = \frac{1}{2} \times 1 + c$	M1	For substituting correctly into the equation of a line formula. M1 can imply B1, B1 if correct.
	$y = \frac{1}{2}x + \frac{3}{2}$ or any correct equivalent	A1	[6]
12	$100 = k \times 20^2$ or any other correct point used	M2	If M0 award M1 for $y = kx^2$ ($k \neq 1$) or $y \propto x^2$
	$y = \frac{1}{4}x^2$ oe	A1	[3]