

MARK SCHEME for the May/June 2013 series

0580 MATHEMATICS

0580/12

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, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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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
- soi seen or implied

Qu	Answers	Mark	Part Marks
1	0.65 cao	1	
2	343	1	
3	29	1	
4	10800	1	
5	cuboid	1	Accept [rectangular] prism.
6	Overlapping class intervals oe	1	
7 (a)	Any acute angle with angle indicated	1	
(b)	Obtuse	1	
8	10, 15	1, 1	If 10 not correct allow SC1 for $x, x + 5$
9	0.25 oe	2	M1 for $1 - (0.45 + 0.3)$ or better or SC1 for 0.52 as final answer
10 (a)	$\begin{pmatrix} 24 \\ 42 \end{pmatrix}$	1	
(b)	$\begin{pmatrix} -1 \\ 9 \end{pmatrix}$	1	
11	10.5 www	2	M1 for $42 = \frac{1}{2} \times BC \times 8$ or better
12 (a)	5.17225...	1	
(b)	5.2	1FT	FT <i>their</i> (a)
13 (a)	108°	1	
(b)	$3 \times 108 \neq 360$ oe	1	
14	Enlargement [Centre] (5,4) [Scale factor] 3	1 1 1	

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Qu	Answers	Mark	Part Marks
15 (a)	52	2	M1 for 180 – 128 or 128 or 52 marked on diagram in a correct position.
(b)	22	1	
16 (a)	3.844×10^5	1	B1 for figs 455 seen
(b)	4.55×10^8	2	
17 (a)	<	1	
(b)	>	1	
(c)	<	1	
18 (a)	-4, -7, [+]5 in any order	1	M1 for -10 and -12 seen SC1 for -10 +12 seen
(b)	-22	2	
19	with 2 correct steps seen $\frac{18k}{35k}$	3	B1 for $\frac{5k}{3k}$ and M1 for $\frac{6}{7} \times their \frac{3}{5}$
20 (a)	Angle or triangle [in a] semi-circle	1	M1 for $\pi \times 1.5^2$ seen
(b)	7.068 to 7.07	2	
21	6632.55 cao final answer	3	M2 for $6250 \times \left(1 + \frac{2}{100}\right)^3$ oe or M1 for $6250 \times \left(1 + \frac{2}{100}\right)^2$ oe SC2 for answer 382.55 final answer
22	14.5 oe	3	M2 for complete correct method or M1 for one correct step
23 (a)	1	1	M2 for $v^2 = \frac{2E}{m}$ or M1 for $mv^2 = 2E$ or $\frac{1}{2} v^2 = \frac{E}{m}$
(b)	$[v =] \sqrt{\frac{2E}{m}}$ or $\sqrt{\frac{E}{0.5m}}$ or $\sqrt{\frac{E}{\frac{1}{2}m}}$	3	

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Qu	Answers	Mark	Part Marks
24	(a) (i) P in correct position at $(-5, -2)$	1	
	(ii) $y = 2x$ drawn	1	
	(b) (i) 2	1	
	(ii) S rotated correctly	2	SC1 if rotated 90acw or 90cw about wrong centre.