

MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers

0580 MATHEMATICS

0580/11

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.

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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	87.5	1	
2 (a)	Equilateral	1	
(b)	3	1	
3	532	2	M1 for 5(h)33(min) + 3(h)19(min)
4	495.36	2	M1 for $700 \div 1.4131$
5	21	2	M1 for $2 \times 3 - 5 \times (-3)$ or better or B1 for 6 and -15 i.e. both terms evaluated
6	$0.85b + 7.5n$ OR $\frac{85n + 750n}{100}$ final answer	2	B1 for $0.85b$ OR $7.5n$ seen
7 (a)	Rhombus	1	
(b)	131°	1	
8	2.25 oe	2	M1 $4x = 7 + 2$ OR $x - \frac{2}{4} = \frac{7}{4}$ or better
9 (a)	30	1	
(b)	18.5	1	
10	23.2	2	M1 for $\sin 53.2 = \frac{x}{29}$ implicit form or better
11 (a)	1, 3, 5, 15	1	
(b)	$3p(5p + 8t)$ final answer	2	B1 for answer of $3(5p^2 + 8pt)$ or $p(15p + 24t)$ or SC1 for correct answer seen in working

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12	Triangle drawn correctly with ruler and arcs	3	M1 for one side drawn to correct length and M1 for clear method of crossing arcs even if wrong scale or inaccurate
13	843.75	3	M2 for $\frac{750 \times 5 \times 2.5}{100} + 750$ oe or M1 for $\frac{750 \times 5 \times 2.5}{100}$ oe or SC2 for answer 93.75
14	$\frac{55}{30} + \frac{27}{30}$ oe or (1) $\frac{25}{30} + \frac{27}{30}$ oe $\frac{82}{30}$ oe or (1) $\frac{52}{30}$ oe $2\frac{11}{15}$ M2 must be scored	M1 M1 A1	for denominator of $30k$ for denominator of $30k$ dependent on previous M1 If M0 scored then SC1 for common denominator of $30k$ seen
15 (a)	51°	1	
(b)	90°	1	
(c)	66°	1	
16	$x = -7$ $y = 9$	3	M1 for consistent multiplication and addition/subtraction as appropriate. Allow computational errors A1 for $x = -7$ or $y = 9$
17 (a)	$(-1, 2)$	1	
(b)	$\begin{pmatrix} 4 \\ -5 \end{pmatrix}$	1	
(c)	$(1, 5)$	1	
18 (a)	330	1	
(b)	1000 or 1×10^3	2	B1 for 1000000 or 1×10^6 or 10^6 seen
(c)	46.3	1	

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19 (a)	$9p - 4q$ final answer	2	SC1 for answer of $9p \pm jq$ OR $\pm kp - 4q$ j, k are integers or for continued work after correct answer
(b)	$x = \frac{g-y}{2}$ oe	2	M1 for correct first step i.e. either $g - y = 2x$ oe OR $\frac{g}{2} = x + \frac{y}{2}$ or SC1 for answer $x = \frac{y-g}{2}$
20 (a)	Perpendicular bisector drawn with 2 pairs of <u>arcs</u> and <u>ruled</u>	2	SC1 for a ruled perpendicular without arcs or only one pair or 2 pairs of correct arcs with no line drawn
(b)	Circle drawn radius 4cm	1	
(c)	Correct region shaded	1	Dependent on SC1 in (a) and an arc, radius 4cm in (b) to enclose correct area
21 (a) (i)	18	1	
(ii)	17	2	M1 for clear attempt to find the middle number
(b)	21	1	