

**MARK SCHEME for the October/November 2012 series**

**0580 MATHEMATICS**

**0580/13**

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

Qu.	Answers	Mark	Part Marks
1	74	1	
2	(a) 2	1	
	(b) Correct line drawn	1	
3	57	2	M1 64 or 7
4	(a) $7t$ final answer	1	
	(b) $r^{13}$ final answer	1	
5	96	2	M1 for $\frac{600 \times 2 \times 8}{100}$ oe If zero SC1 696
6	$\frac{1}{100} + \frac{4}{25}$ or $0.1^2 + 0.4^2$ oe	M1	
	$\frac{1}{100} + \frac{16}{100} = 0.17$ or $0.01 + 0.16 = 0.17$	M1	Independent
7	$5p + 11r$ final answer	2	B1 $5p$ or $11r$ seen
8	180	2	M1 for $\frac{300 \times 12}{20}$ oe
9	$3y - y^4$ final answer	2	B1 for $3y$ or $-y^4$ as part of two term expression
10	88.2(0)	2	M1 for $84 \times 1.05$ oe
11	249.5 [ $\leq j <$ ] 250.5 cao	2	B1 for either, or both correct but reversed
12	(a) $\frac{5^2 + 20}{\sqrt{100}}$	1	
	(b) 4.5 cao	1	

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13	$4y(x + 3z)$ final answer	2	<b>B1</b> $4(xy + 3yz)$ or $y(4x + 12z)$ or $2y(2x + 6z)$
14	Accurate perpendicular bisector of $RT$ with arcs.	2	<b>B1</b> for 2 pairs of correct arcs <b>B1</b> for correct line
15	8.471 cao	2	<b>B1</b> for 8.47 or 8.4705 to 8.4706 or $\frac{144}{17}$ or $8\frac{8}{17}$
16	108	3	<b>M2</b> for $180 - (360 \div 5)$ or $\frac{180(5-2)}{5}$ <b>M1</b> for $360 \div 5$ or $180 \times 3$
17	$\frac{215}{40} - \frac{88}{40}$  $\frac{127}{40}$ or $3\frac{7}{40}$	<b>M2</b>  <b>A1</b>	$3\left(\frac{15}{40} - \frac{8}{40}\right)$ OR <b>M1</b> for $\frac{15}{40}$ or $\frac{8}{40}$ or $\frac{215}{40}$ or $\frac{88}{40}$
18	(a) 9 (b) Ruled line of best fit drawn (c) positive	1 1 1	
19	(a) (5, 1) marked (b) (-1, 0) (c) 2	1 1 2	<b>M1</b> correct rise over run
20	(a) 0.71 oe (b) (i) $\frac{3}{20}$ oe or 0.15 or 15% (ii) $\frac{15}{20}$ oe or 0.75 or 75% (iii) 0	1 1 1 1	
21	(a) (i) triangle with arcs (ii) Midpoint marked 5.8 – 6.2 cm (b) (i) Correct sketch (ii) Rhombus or square cao	2 1ft 1 1	<b>M1</b> 1 side correct

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<b>22</b>	<b>(a)</b>	<b>(i)</b> 7.3 – 7.7 cm	<b>1</b>	
		<b>(ii)</b> Tangent	<b>1</b>	
		<b>(iii)</b> <i>D</i> marked on circumference	<b>1</b>	
	<b>(b)</b> 11.3 to 11.3112	<b>2</b>	<b>M1</b> $3.6 \times \pi$	