

**MARK SCHEME for the May/June 2010 question paper
for the guidance of teachers**

<p>0580 MATHEMATICS</p> <p>0580/11 Paper 11 (Core), maximum raw mark 56</p>
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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.

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Qu.	Answers	Mark	Part Marks
1	10 18 (am)	1	
2	(a) 41% 0.43 $\frac{4}{9}$	1	accept decimals
	(b) $0.3 < \frac{1}{3}$ only	1	
3	$\frac{3}{5}$	2	W1 for $\frac{21}{35}$ M1 $1 - \frac{14}{35}$ oe SC1 answer $\frac{2}{5}$
4	$y = 4x - 3$ oe	2	W1 for $y = 4x + j$, or $y = kx - 3$ If zero, SC1 for $4x - 3$ $k \neq 0$
5	287°	2	W1 for 73 or 107 marked in correct position at P or M1 $107 + 180$
6	(a) -7	1	
	(b) 13	1	
7	10	2	M1 for $\frac{\text{their } (17000 - 15300)}{17000}$ W1 for $\frac{15300}{17000} \times 100$ or answer 90(%)
8	(a) $x + x + 3 + 2x - 7 = 52$ or better	1	
	(b) 14	2ft	W1 for $4x$ or 56 seen Follow through their (a) if linear and equal to 52 for 1 or 2 marks.
9	2.5(0) or 2.503..... to 2.504	3	M1 for $\pi r^2 = 19.7$ soi M1 dep for $19.7 \div \pi$
10	(a) p^7	1	
	(b) $4q^6$	2	W1 for $4q^n$ or kq^6 $k \neq 0$
11	18	3	M1 for exterior angle $180 - 160$ implied by 20 (could be on diagram) M1 dep for $360 \div \text{their } 20$
12	(a) 0.01 or $\frac{1}{100}$	1	
	(b) 1	1	
	(c) 7	1	

13	(x =) 4 (y =) – 1	3	M1 for multiplying and subtracting or adding appropriate. (allow errors in arithmetic operations) or any other correct methods. A1 for one correct variable
14	(a) 90° (b) 72° (c) 90° (d) 36°	1 1 1 1	Ft 180 – (54 + their (c))
15	(a) $\begin{pmatrix} 4 \\ -9 \end{pmatrix}$ (b) $\begin{pmatrix} 0 \\ 28 \end{pmatrix}$	1, 1 1, 1	
16	lines of symmetry 1 0 order rotational 1 4	1, 1 1, 1	
17	(a) (i) 0.3 oe (ii) 18 (b) horizontal line to (30,3) line from (30,3) to (45,0) OR from their (x,3) to (their x + 15, 0)	1 1 1 1ft	Follow through their (a)(i) × 60
18	(a) $y(3y - 7x)$ final answer (b) $4p^2 + 17pr + 2r^2$ final answer	1 3	W2 for 2 correct terms in answer. W1 for 1 correct term in answer. OR M1 for $4p^2 + 5pr$ and M1 ind for $12pr + 2r^2$
19	(a) (i) 12 (ii) 120 ft (b) (i) 625 (ii) 0.0625	1 2 1 1ft	M1 for attempt to multiply their (a)(i) by 10 soi. or their (b)(i) ÷ 10 000