

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

0580 MATHEMATICS

0580/12

Paper 12 (Core), maximum raw mark 56

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Qu.	Answers	Mark	Part Marks
1	119	1	
2	(a) 24 (b) (24), 48, 72, 96	1 1	SC1 for ans (48), 96 if their (a) is 48.
3	$3p(2m - 3q)$ final answer	2	W1 for $3(2mp - 3pq)$ or $p(6m - 9q)$ or $3p(am \pm bq)$ where a and b are integers.
4	$\frac{7}{20}$ or equivalent fraction isw www	2	M1 for $\frac{2 \times 4}{4 \times 5} + \frac{5 \times 1}{4 \times 5}$ or $\frac{8}{20} + \frac{5}{20}$ or $0.4 + 0.25$ or $1 - \frac{8}{20} - \frac{5}{20}$ or $1 - 0.4 - 0.25$ or $40 + 25$ or $400 + 250$ or $1000 - 400 - 250$ seen If M0 then SC1 for $\frac{7}{20}$ with no, incomplete or wrong working. Condone if followed by 0.35 or 35%
5	(a) 22 10, 22:10, 22.10, 10 10pm (b) 11(h) 35(min)	1 1ft	Follow through time period from their (a) to 09 45
6	1904	2	M1 for 400×4.76
7	66.5	2 cao	W1 for figs 665 or SC1 answer of $66.5 < LB < 67.5$
8	$(\pm)\sqrt{m+2}$ final answer	2	W1 for $p^2 = m + 2$ or ft square root after incorrect first step(s). SC1 answer of $(\pm)\sqrt{m+2}$
9	(a) (0)34 to (0)36 (b) 286 to 289	1 1	
10	(a) 6 (b) 520	1 2	M1 for $5 \times 10^2 - 10 \times -2$, or better If zero, SC1 for answer of 480 or 2520
11	(a) Line of fit by eye (b) Negative (c) Older children run faster	1 1 1	
12	(a) -3 (b) (i) p^5 (ii) m^{-4} or $\frac{1}{m^4}$	1 1 1	

13	(a) 0.08259(.....)	1	W1 for their figs 826, i.e. to 3 sig figs (a) must have a minimum of 4 figures in order to qualify for this mark. or W1 ind for their (a) in standard form.
	(b) 8.26×10^{-2}	2ft	
14	$(x) = 7, (y) = 3, www$	3	M1 for multiplying and subtracting or adding as appropriate. (allow errors in arithmetic operations) or any other correct methods A1 for one correct variable.
15	Rectangle width 1.5 cm.	1	in a correct place
	Rectangle width 1 cm.	1	in a correct place
	Accurately drawn cross-section piece	1	in a correct place
16	(\$)282.56(...)	3	M1 for 2500×1.055^2 oe 2782(. ...) and M1 dep for subtracting 2500
17	(a) D	1	
	(b) E	1	
	(c) G	1	
	(d) F	1	
18	(a) Translation $\begin{pmatrix} 7 \\ -6 \end{pmatrix}$	2	W1 cao for translation (allow poor spelling) or W1 independent for correct vector alone.
	(b) Correct rotation (4, 4), (5, 4), (5, 2) and (2, 4)	2	W1 for (2, 4) missed but other points correct or SC1 for 90 anti-clockwise rotation or SC1 correct rotation, any other centre
19	(a) 98.1 or 98.13 to 98.14	3	M1 for $14 \times 6 (+.....)$ M1 ind for $\pi \times 3^2 \div 2$
	(b) 19.6 or 19.62 to 19.63	2ft	M1 for their (a) \times figs 2 Figs 196.... implies M1
20	(a) Two parallel straight lines 7 cm long and 4 cm from <i>AB</i> and two semicircular ends 4 cm from <i>A</i> and from <i>B</i> .	2	W1 for 2 correct lines or 2 semicircles.
	(b) 391 or 391.3 to 391.4	3 cao	M1 for 2×70 soi and M1 ind for $2 \times \pi \times 40$ SC2 for answer of 39.1 or 39.13 to 39.14