

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

<p><b>0581/12</b></p>	<p><b>0581 MATHEMATICS</b></p> <p>Paper 12 (Core), maximum raw mark 56</p>
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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 $400 \times 4.76$
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	

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