

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

0581 MATHEMATICS

0581/33

Paper 33 (Core), maximum raw mark 104

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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
- art anything rounding to
- soi seen or implied

Qu.	Answers	Mark	Part Marks
1 (a)	1750	2	M1 $\frac{7}{4+7} \times 2750$ oe
(b)	660	2	M1 $\frac{24 \times 2750}{100}$
(c)	$\frac{3}{25}$	2	W1 for equivalent fractions
(d)	3135 cao	3	M2 $\frac{114}{100} \times 2750$ oe If M0 then M1 for $\frac{14}{100} \times 2750$ or 385 seen
(e)	9475	1	cao
(f)	3.5×10^4	1	cao
2 (a) (i)	Any 5 multiples of 7	2	-1 each error or omission
(ii)	Two multiples of 28	2	W1, W1
(b) (i)	25	1	cao
(ii)	17	1	cao
(c)	4	1	cao
(d)	$(k =) 2, (m =) 19$	2	W1, W1

3 (a)	3, 5, -1	3	1 each
(b)	7 points plotted reasonable freehand curve	P3ft C1	P2 for 5 or 6 points, P1 for 3 or 4 points
(c)	-1.3, 2.3 <u>strict ft</u> their intercept with $y = 2$	2ft	W1 for either
(d) (i)	-7, -1, 5	2	W1 for 2 correct
(ii)	Correct ruled line	2	SC1 for freehand line, or ruled short line crossing curve twice Or their 3 points plotted
(iii)	2	1	cao
(e)	(-3, -7) and (2, 3)	2ft	1 for either
4 (a)	$(x =) 7.5$	3	W1 for correct bracket expansions M1ft for collecting their terms correctly
(b)	$(f =) \frac{g+5}{7}$	2	M1 for one correct step seen
(c)	$2y(3x - 5z)$	2	W1 for $2(3xy - 5yz)$ or $y(6x - 10z)$ or $2y(ax + bz)$ where a and b are integers
5 (a)	Congruent	1	cao
(b)	36° or 36.0° art	2	M1 for $\tan \text{ angle} = \frac{8}{11}$
(c) (i)	20	2	M1 for $\frac{1}{2} \times 5 \times (5 + 3)$ oe
(ii)	40	1ft	ft is $2 \times$ their (c)(i)
(d)	14	3	W1 for $x + x + x + 3 + x + 3 = 62$ o.e. M1ft for correct first step but must be from a linear equation $ax + b = k$

6 (a)	Point C constructed with arcs, $AC = 11$ cm $BC = 9$ cm	2	W1 if correct without arcs
(b)	46°	1ft	
(c) (i)	Bisector of angle ABC with 4 correct arcs and reaches AC	2ft	W1 if accurate without arcs or accurate with arcs and short
(ii)	Perpendicular bisector of AC , with correct arcs	2ft	W1 if accurate without arcs
(d) (i)	0.7 to 0.8 cm	1ft	ft their PQ provided on their AC
(ii)	Region of triangle between their constructions	1	dep on W1 and W1 in (c)(i) and (c)(ii)
(e)	500	2	W1 for figs 5 or 9 and 4500 oe seen
7 (a) (i)	21	1	cao
(ii)	33	1	cao
(iii)	$4n + 1$ oe	2	W1 for $4n + j$ or $kn + 1$, where k not equal to zero, seen
(b) (i)	40	1	cao
(ii)	3	2	W1 for embedded answer or M1 for $1(1 + p) = 4$ oe
(iii)	10300	1ft	ft is $100 \times (100 + \text{their } p)$ evaluated
8 (a) (i)	$\frac{19}{50}$	1	Accept 0.38 or 38%
(ii)	$\frac{29}{50}$	1	Accept 0.58 or 58%
(iii)	$\frac{40}{50}$ oe	1	Accept 0.8 or 80%
(iv)	0	1	Accept $\frac{0}{50}$, 0%, nil or zero
(b)	50 or all	1	

9 (a)	67	2	M1 their $469 \div 7$
(b)	62	1	cao
(c)	Correct labelled vertical scale Bars equal width (with consistent/without gaps), or lines All 7 bars/lines correct height	1 1 3ft	W2ft for 5 or 6 bars correct, W1ft for 3 or 4
10 (a)(i)	325.65	2	M1 for 500×0.6513 soi
(ii)	460.62 or 460.61	3	M1 for $300 \div 0.6513$ A1 for 460.6 or 461 or 460.617.... W1 indep for their visible answer <u>corrected</u> to 2dp
(b)	349.70	3	M1 for $\frac{325 \times 2 \times 3.8}{100}$ or 24.7(0) M1dep for their interest added to 325
(c)	617.98	3	M2 for 550×1.06^2 or M1 for 550×1.06 oe and M1 dep for second year Penalise accuracy only once in the question
11 (a)(i)	Reflection in the x -axis (or $y = 0$)	1, 1	
(ii)	Rotation, about origin, 90° (anti-clockwise)	1, 1, 1	Accept (0,0) or O Accept (+) $90, -270, \frac{1}{4}$ turn
(b)(i)	Correct translation	2	W1 for correct shape and orientation translated by $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$ or $\begin{pmatrix} 0 \\ 4 \end{pmatrix}$ or $\begin{pmatrix} 4 \\ 6 \end{pmatrix}$
(ii)	Correct enlargement	2	W1 for correct orientation and size but wrong position