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for the guidance of teachers

0580 MATHEMATICS

0580/33

Paper 33 (Core), maximum raw mark 104

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UNIVERSITY of CAMBRIDGE International Examinations

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	Page 2	Mark Scheme: Teachers' version	Syllabus 3
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Abbro cao cso dep ft isw oe SC	eviations correct ans correct solu dependent follow thro ignore subs or equivale Special Cas	wer only ution only ough after error sequent working ent se	nathscioud.com
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art	anything ro	bunding to	

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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

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Page 3		Mark Scheme: Teac	ersion Syllabus	5	
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				All Strains	
3 (a)	3, 5, -1	l	3	1 each	
(b)	7 point reasona	s plotted able freehand curve	P3ft C1	P2 for 5 or 6 points, P1 for 3 or 4 points	2
(c)	-1.3, 2 y = 2	.3 strict ft their intercept with	2ft	W1 for either	ク
(d) (i)	-7, -1, 5		2	W1 for 2 correct	
(ii)	Correct	t 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	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)	$(f =) = \frac{2}{3}$	$\frac{g+5}{7}$	2	M1 for one correct step seen	
(c)	2y(3x)	-5z)	2	W1 for $2(3xy-5yz)$ or $y(6x-10z)$ or	
				2y(dx + bz) where a and b are integers	
5 (a)	Congru	ient	1	cao	
(b)	36° or 3	36.0° art	2	M1 for tan angle = $\frac{8}{11}$	
(c) (i)	20		2	M1 for $\frac{1}{2} \times 5 \times (5+3)$ oe	
(ii)	40		1ft	ft is $2 \times \text{their (c)(i)}$	
(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 $ax + b = k$	

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Page 4		Mark Scheme: Teac	hors' vo	arsion Syllabus 20 14
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6 (a)	Point C AC = 1	C constructed with arcs, 1 cm BC = 9 cm	2	W1 if correct without arcs
(b)	46°		1ft	40 [.]
(c) (i)	Bisecto arcs an	or of angle <i>ABC</i> with 4 correct d reaches AC	2ft	W1 if accurate without arcs or accurate with arcs and short
(ii)	Perpen correct	dicular bisector of <i>AC</i> , with arcs	2ft	W1 if accurate without arcs
(d) (i)	0.7 to ().8 cm	1ft	ft their PQ provided on their AC
(ii)	Region constru	of triangle between their actions	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)	4 <i>n</i> + 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 a	11	1	

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Page	e 5	5 Mark Scheme: Teachers' version			Syllabus	2	
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9 (a)	67		2	M1 their 469 ÷	7	- athory is	
(b)	62		1	cao		·049	
(c)	Correct labelled vertical scale Bars equal width (with consistent/without gaps), or lines		1			Con	
	All 7 ba	rs/lines correct height	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 ÷ 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)	Reflecti	on in the <i>x</i> -axis (or $y = 0$)	1, 1				
(ii)	Rotation clockwi	n, about origin, 90° (anti- se)	1, 1, 1	Accept (0,0) or Accept (+) 90,	<i>O</i> – 270, ¼ turn		
(b)(i)	Correct	translation	2	W1 for correct by $\begin{pmatrix} 6\\0 \end{pmatrix}$ or $\begin{pmatrix} 0\\4 \end{pmatrix}$	shape and orientation or $\begin{pmatrix} 4\\ 6 \end{pmatrix}$	translated	
(ii)	Correct	enlargement	2	W1 for correct orientation and size but wrong position			