

MARK SCHEME for the October/November 2014 series

0580 MATHEMATICS

0580/31

Paper 2 – Core, maximum raw mark 104

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Abbrev	iations		- CIOUD
cao	correct answer only		COD
dep	dependent		
FT	follow through after arror		

Abbreviations

cao	correct answer only
dep	dependent
FŤ	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfww	not from wrong working

soi seen or implied

Qu.	Answers	Mark	Part Marks
1 (a) (i)	540 ÷ 9 <i>their</i> 60 × (9 + 7 + 4 + 5) 1500 ÷ 1000	M1 M1FT A1	Alternative method M1 540 ÷ 1000 M1FT <i>their</i> 0.54 ÷ 9 A1 0.06 × (9 + 7 + 4 + 5)
			If 0 scored SC1 for 0.54 + 0.42 + 0.24 + 0.3
(ii)	300	2	M1 for 5 ÷ (9 + 7 + 4 + 5) × 1500 or (540/9) × 5 or 60 × 5
(iii)	210	2FT	M1 for 70 ÷ 100 × <i>their</i> (a)(ii) oe
(b) (i)	2.25	1	
(ii)	52.6[0]	2	B1 for 14 or (7/8) × 16 × 3.4[0]
(iii)	46.1	3FT	M2 for (<i>their</i> (b)(ii) – 36) ÷ 36 × 100 or M1 for <i>their</i> (b)(ii) – 36
			M2 for <i>their</i> (b)(ii) ÷ 36 × 100 – 100 M1 for <i>their</i> (b)(ii) ÷ 36 [× 100]
2 (a) (i)	Trapezium	1	
(ii)	16 cm ²	2 1	M1 for $\frac{1}{2}(2+6) \times 4$ oe
(b)	Rotation	B 1	Independent marks
	90°[anti-clockwise] oe	B1	
	[centre] (-2, -8)	B1	
(c) (i)	Correct reflection in $y = 0$	2	SC1 for correct reflection in $x = 0$
(ii)	Translation 5 left and 7 up	2	SC1 for one of 5 left or 7 up

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	(iii)	Correct Enlargement	2	SC1 for enlargement, SF ¹ / ₂ , but incorrectly placed.		
(d)		Obtuse angle marked	1			
3 (a)	(i)	4 points correctly plotted.	2	B1 for 1 cor	rect	
	(ii)	Correct continuous ruled line of best fit.	1	Dependent ograph	on at least 8 p	oints on
	(iii)	Distance on their line of best fit.	1FT	FT <i>their</i> sin	gle straight li	ne in part
	(iv)	Negative	1	(11).		
	(v)	Faster the time, the longer the distance oe	1			
(b)	(i)	11.7 or 11.69 NFWW	2	M1 for Atte	mpt at $\sum f$	÷ 12
	(ii)	41.7 or 41.66 to 41.67	2	B1 for $\frac{5}{12}$ s	een	
	(iii)	2.45	1			
4 (a)		x + x + 180 = 480 2x = 300	M1 M1			
(b)	1	1060 [cm]	2	M1 for 2×4	$480 + 2 \times (20)$	+ 30) oe
(c)	(i)	16 500	2	M1 for 30 × 150 oe	150 + 50 × 1	80 + 20 ×
	(ii)	2 805 000	1FT	FT their (c)	(i) × 170	
	(iii)	44.9 or 44-88	2FT	FT their (c) M1 for their	(ii) ÷ 100 ³ × 1 ⊂ (c)(ii) × 16	6

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5 (a)		6 003 076	1			
(b)	(i)	-0.375	1			
	(ii)	-2.2	1			
((iii)	>	1FT	FT their answ	vers to (i) an	d (ii)
(c)		3945, 3955	1, 1	SC1 for both	correct but 1	reversed
(d)		1.667 cao	2	B1 for $1\frac{2}{3}$ or b	oetter	
(e)	(i)	1	1			
	(ii)	$\frac{1}{125}$	1			
	(iii)	$24x^9$	2	B1 for $24x^k$ or	r <i>kx</i> 9	
6 (a)	(i)	4, 7, 4	2	B1 for 2 corre	ect	
	(ii)	7 points correctly plotted	3FT	B2 for 5 or 6 B1 for 3 or 4	correct	
		Correct curve through the points	1	D1 101 5 01 4	concer	
((iii)	x = 0	1			
	(iv)	2.7 to 2.9, -2.7 to -2.9	1, 1			
(b)	(i)	Points correctly plotted and a ruled line through points and beyond them.	2	B1 for 1 corrent not drawn)	ect plot. (eve	en if line is
	(ii)	[y=]-2x+4	3	B2 for $-2x + j$ or B1 for $kx + j$ or [gradient =	<i>i</i> - 4 <i>k</i> ≠ 0 :] <u>rise</u> correc	t values
	(iii)	(-1.2 to -1.4, 6.4 to 6.6)	1			
7 (a)		106 to 110	1			
(b)	(i)	Correct bisector of <i>AB</i> constructed with 2 pairs of arcs.	2	B1 for correct	t bisector	
	(ii)	Correct bisector of angle ABC with arcs	2	B1 for correct	t bisector wi	thout arcs
	(iii)	T marked at intersection of their bisectors	1FT			

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	(c)	24.4[km] to 26.0[km]	2FT	FT <i>their AT</i> B1 for <i>their AT</i> correctly measured.			
	(d)	Circle, radius 7.5(± 0.2)cm centre <i>T</i> .	2FT	FT <i>their</i> intersection SC1 for circle centre T, incorrect radius.			
	(e)	No It is outside the circle. oe	1FT	FT their circle.			
8	(a) (i) Correct diagram with scale	3	B1 scale correct.B1 for all widths the sameB1 for all 6 heights correct			
	(i	i) 10 to 12 cao	1				
	(ii	i) $\frac{19}{120}$ or 0.158[3] or 15.8[3]%	1				
	(b)	Probability must be between 0 and 1 oe	1				
	(c) (i) $\frac{9}{20}$ or 0.45 or 45%	1				
	(i	i) 0 oe	1				
9	(a) (i) 18 23 28	1, 1, 1	Allow one mark for each addition of 5 to the previous answer			
	(i	i) Add 5 oe	1				
	(ii	i) $5n-2$ oe	2	B1 for $5n + j$ or $kn - 2$ $k \neq 0$			
	(i	y) 73	1FT	FT <i>their</i> (a)(iii) if linear.			
	(b) (i) 10 14	1, 1	Allow 1 mark for addition of 4 on their value for 3rd diagram.			
	(i	i) $4n-2$ oe	2	B1 for $4n + j$ or $kn - 2$ $k \neq 0$			