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Mark Scheme (Results)
November 2010

IGCSE

IGCSE Mathematics (4400)
Paper 1F Foundation Tier

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The following questions require a seen valid method before the accuracy mark can be awarded: Q19

For all other questions a correct answer implies a correct method.

Question		Working	Answer	Mark		Notes
1.	ai		1001	1	B1	
	aii		20	1	B1	
	b		35	1	B1	
	c		1, 3, 11, 33	2	B2	B1: two or three correct and no extras or four correct and one extra
	d		31 or 37	1	B1	either or both stated
						Total 6 marks

2.			98, 102	2	B1B1	B1 each number
						Total 2 marks

3.	a		kite	1	B1	
	bi		*r*	1	B1	
	bii		*w* or *x*	1	B1	either or both stated
						Total 3 marks

4.	i		Unlikely	1	B1	
	ii		Likely	1	B1	
	iii		Impossible	1	B1	
						Total 3 marks

Question		Working	Answer	Mark		Notes
5.	a		$^1/_3$ oe	1	B1	eg $^2/_6$; not decimal or a percentage
	b		any 6 squares shaded	1	B1	allow if intention is clear
						Total 2 marks

6.	a		(3, 7)	1	B1	
	b		(-3, 1)	1	B1	
	c		7.1 to 7.3	1	B1	
	d	6 + 6 + 2 + "7.2"	21.1 to 21.3	2	M1 A1ft	
						Total 5 marks

7.	a	5 – –6	11	2	M1 A1	or 5 + 6
	b	–6 – 3	– 9	2	M1 A1	
						Total 4 marks

8.	ai		15	1	B1	
	aii		39 to 40	1	B1	inclusive
	b	eg (Read at x = 45) × 2 (Read at x = 30) × 3 etc	24 to 27	2	M1 A1	read km/h & use corresponding multiple inclusive
						Total 4 marks

Question	Working	Answer	Mark		Notes
9. a	$^{60}/_{360} \times 72$ oe	12	2	M1 A1	72 ÷ 6
b	$^{20}/_{72} \times 360$ oe	100	2	M1 A1	0.277 x 360 or better
					Total 4 marks

10. a		B, C	1	B1	Any order
b		B, D or C, D	1	B1	Either answer any order
c		rotation	1	B1	ignore other information
					Total 3 marks

11. a		17 10	1	B1	allow any punctuation or none; not 1710 **pm**
b	"1710" – 0825 or (12.00-8.25) + 5.10 8 hrs *n* mins (*n* < 60) or 8**.** .. hrs	8hrs 45 mins	3	M1 A1 A1ft	35 +10 (=45) 17 – 9 (=8) Implies method ft only (a)
					Total 4 marks

Question		Working	Answer	Mark		Notes
12.	ai		$^2/_5$	1	B1	or equiv <u>fraction</u>, eg $^{64}/_{160}$; not 0.4 or 40%
	aii	"$^2/_5$" × 160	64	2	M1 A1f	$^3/_5$ × 160 (= 96) & 160 – "96" Only ft if x 160
	bi	$^{20}/_{160}$	$^1/_8$	2	M1 A1	cao
	bii	"$^1/_8$" × 100	12.5	2	M1 A1	cao
	c	20 × 5.25 or 100 ÷ 5.25 = 105 = 19.0(4)…	No	3	M1 A1 A1	5 × 20 = 100 Must reach a conclusion (dep on previous 2 marks)
						Total 10 marks

13.	a	8, 10, (12), 12, 15, 18		2	B2	B1 for four correct
	b		$^2/_6$ or $^1/_3$ oe	2	B2ft	B1ft numerator correct or denom =6
	c		$^2/_3$ oe	1	B1ft	1–(b) correctly evaluated, dep 0 $\leq$ (b) $\leq$ 1
						Total 5 marks

14.	1×4 + 2×9 +3×8 + 5×4 (= 66) "66" ÷ (4+9+8+4)	2.64	3	M1 M1 A1	At least 3 correct products with the intention to add dep allow 3 with working 3 without working: M0M0A0 2.6 without working: M1M1A0
					Total 3 marks

Question	Working	Answer	Mark		Notes
15. a		$a + 9b$	2	B2	B1 each term
bi		$4c - 12$	1	B1	
bii		$d^3 + 4d$	2	B2	B1 each term
c		$x(3 - 2x)$	2	B2	B1 for x(expression with one correct term)
					Total 7 marks

16.	v	BAC= 70 Isosceles triangle ABC = 40 or PAC = 110 or PA(CA ext)= 70 x = 40	4	B1 B1 B1 B1	(can be marked on diagram) dep on prev B1. Must not contain incorrect statements. look for values on diagram dep on reason. Either alternate (with ABC) or angles between parallel lines (=180) or alternate (with 110) or corresponding (with 70) answer only = B1B0B1B0
					Total 4 marks

17.	a	$\pi \times 8.9^2$	248.8…..	3	M1 A1	or 3.14… × 8.9^2 or $^{22}/_{7} \times 8.9^2$ awrt 248.7 to 248.9
			m^2 or sq metres oe		B1	ind
	b		250	1	B1ft	ft (a), if given to $\geq$ 3 sig figs (ignore units)
						Total 4 marks

Question		Working	Answer	Mark		Notes
18.	a	$^{6}/_{7} \times {}^{1}/_{4}$ $^{6}/_{28}$ or $^{3}/_{7} \times {}^{1}/_{2}$		2	M1 A1	or $^{6}/_{7} \div {}^{28}/_{7}$ or divide numerators answer $\equiv {}^{3}/_{14}$ (but not = $^{3}/_{14}$) or cancelling
	b	$^{51}/_{15}$ and $^{25}/_{15}$ any multiple of 15 valid $^{51}/_{15} - {}^{25}/_{15}$ correct fractions subtracted $^{26}/_{15}$		3	M1 M1 A1	$^{6}/_{15}$ and $^{10}/_{15}$ dep $^{-4}/_{15}$ or $^{6}/_{15} - {}^{10}/_{15}$ (dep on M2) $2 - {}^{4}/_{15}$ oe (but not $1^{11}/_{15}$)
						Total 5 marks

19.	a	$3w = 12$	4	2	M1 A1	
	b	$7x - 2x = -4 - 3$ $5x = -7$	-1.4	3	M1 M1 A1	correct gathering of terms Accept –7/5 (not –7 ÷ 5) No working: M0A0
	c	$16 - 5y = 2 \times 3$ $-5y = -10$ oe	2	3	M1 M1 A1	16/3 – 2 =5y/3 10/3 = 5y/3 Accept –10/–5 (not –10 ÷ –5) No working: M0A0
						Total 8 marks

Question		Working	Answer	Mark		Notes
20.	ai		Mr Smith's hats	1	B1	
	aii		0 1		B1	none or zero, Ø, { }, or "empty set" etc; allow "There aren't any"
	bi		*B*	1	B1	
	bii		$\in$	1	B1	
						Total 4 marks

21.	a	$^{x}/_{9}$ = tan 36° or tan 36° or 0.726..seen 9 × tan 36°	6.54	3	M1 M1 A1	$x^2 + 9^2 = (9/\cos 36)^2$ oe (e.g. $x^2 + 9^2 = 11.12^2$) $\sqrt{((9/\cos 36)^2 - 9^2)}$ awrt 6.54 use isw if better seen in body
	b	$10^2 = 4.5^2 + y^2$ oe $\sqrt{(10^2 - 4.5^2)}$ or $\sqrt{79.75}$	8.93	3	M1 M1 A1	or $10^2 - 4.5^2$ M2 for 4.5 x tan ($\cos^{-1} {}^{4.5}/_{10}$) awrt 8.93 use isw if better seen in body
						Total 6 marks

22.	a		1, 5, 6	2	B2	B1 three positive whole nos with med 5 or mean 4
	b		5, 5, 7, *x*	2	B2	$x > 7$ B1 four whole nos with single mode 5 or med 6
						Total 4 marks

						TOTAL FOR PAPER: 100 MARKS

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