

IGCSE (9–1) Maths - practice paper 5F mark scheme

Results Plus data on 96 of the 100 marks:

Paper 5

Edexcel averages:

Year	Paper	Qu. no	New qu. no.	Mean score	Max score	Mean %	ALL	A*	A	B	C	D	E	F	G	U
1701	1FR	Q02	Q01	7.62	9	84.7	7.62				8.28	7.75	7.05	5.00	3.25	2.00
1701	1FR	Q03	Q02	1.81	3	60.3	1.81				2.18	1.89	1.16	0.60	0.00	0.00
1701	1FR	Q04	Q03	6.05	7	86.4	6.05				6.58	5.74	5.48	5.00	4.00	3.00
1701	2FR	Q07	Q04	4.15	5	83.0	4.15				4.64	4.11	3.47	3.50	1.00	2.00
1701	1FR	Q07	Q05	4.64	6	77.3	4.64				5.14	4.68	3.78	4.60	0.50	2.00
1701	1FR	Q08	Q06	5.96	7	85.1	5.96				6.62	5.43	5.42	6.00	2.75	1.00
1701	1FR	Q10	Q07	4.74	6	79.0	4.74				5.49	4.54	3.57	2.80	2.50	1.00
1701	1FR	Q11	Q08	4.53	7	64.7	4.53				5.78	4.06	2.79	0.80	1.00	0.00
1701	2FR	Q16	Q09	3.00	4	75.0	3.00				3.76	2.82	1.90	1.17	0.50	0.00
1701	2FR	Q20	Q10	2.21	3	73.7	2.21				2.73	1.71	1.89	1.00	0.75	0.00
1701	2FR	Q19	Q11	2.78	4	69.5	2.78				3.88	2.36	1.00	0.17	0.50	0.00
1701	3HR	Q01	Q12	1.08	2	54.0	1.08	1.62	1.14	0.55	0.31	0.16	0.24			0.00
1701	1FR	Q16	Q13	2.40	4	60.0	2.40				3.52	1.46	0.89	0.20	0.50	0.00
1701	2FR	Q22bc	Q14	2.14	4	53.5	2.14				3.06	1.39	1.06	0.17	0.75	0.00
1706	1FR	Q23	Q15	1.39	3	46.3	1.39				2.10	1.49	1.08	0.72	0.08	0.00
1701	1FR	Q18	Q16	2.44	4	61.0	2.44				3.12	2.47	0.74	0.60	1.75	0.00
1701	1FR	Q19	Q17	1.23	4	30.8	1.23				2.22	0.14	0.00	0.00	0.00	0.00
1701	2FR	Q23	Q18	1.02	3	34.0	1.02				1.76	0.32	0.00	0.00	0.00	0.00
1701	4HR	Q10	Q19	2.19	4	54.8	2.19	3.33	2.17	1.34	0.65	0.14	0.08			0.00
1701	4HR	Q11	Q20	1.23	2	61.5	1.23	1.85	1.37	0.67	0.31	0.13	0.00			0.00
Sp ppr	1F	Q22	Q21		4											
1701	1FR	Q20	Q22	2.83	5	56.6	2.83				3.88	1.54	1.57	1.40	2.75	0.00
				65.44	96	68.2	65.44				76.01	54.33	43.17	33.73	22.58	11.00

Q	Working	Answer	Mark	Notes
1 a		Friday	1	B1 F or Fri
b		Twelve thousand and thirty eight	1	B1
c		4900	1	B1
d		9780, 4695	2	B2 B1 for one correct
e	15243 ÷ 1200	13	2	M1 A1 accept 12.7 – 13 providing working seen
f	(9780 + 4853 + 12038 + 15243 + 4695 + 4801 + 11856) ÷ 7 or 63266 ÷ 7	9038	2	M1 Full method A1
				Total 9 marks

2 a		radius	1	B1
b		chord	1	B1
c		segment shaded	1	B1
				Total 3 marks

3 a		20	1	B1
b		9	1	B1 accept 6 < population < 10
c		Argentina	1	B1
d		explanation	1	B1 eg. No as 1/5 of 20 is 4
e		bar drawn	1	B1 25 < height < 30
f	E.g. 626 : 32	313 : 16	2	M1 or any other equivalent ratio or 16 : 313 A1
				Total 7 marks

4	(a)		January	1	B1	Accept - 4
	(b)	13 -- 2		15	2	M1 Accept -2 - 13 A1 Accept -15
	(c)	-4 + 28 or 28 - 4		24	2	M1 Accept 28 + -4 A1
						Total 5 marks

5	ai		unlikely	1	B1	
	aii		impossible	1	B1	
	b				2	M1 for $\frac{a}{8}$ with $a < 8$ or $\frac{3}{b}$ with $b > 3$ A1
	c		E,W E,X F,W F,X G,W G,X	2	2	M1 for at least 3 correct pairs (ignore repeats) A1 for all 6 pairs with no repeats
						Total 6 marks

6	a		$3p$	1	B1	
	b		$30ef$	1	B1	
	c		5	1	B1	
	d		4	1	B1	
	e	$23 = 3c + 5$ $23 - 5 = 3c$		6	3	M1 for substitution M1 isolating term in c A1
						Total 7 marks

7	a	$\frac{2}{9} \times 738$ oe or $738 \div 9 (=82)$ or $2 \times 738 (=1476)$	164	2	M1 A1
	b	$24 - 17 = 7$ or $\frac{17}{24}$	$\frac{7}{24}$	2	M1 A1
	c	$\frac{10}{21} - \frac{7}{21}$	shown	2	M1 or any 2 equivalent fractions with common denominators eg. $\frac{30}{63} - \frac{21}{63}$ A1 for completion
					Total 6 marks

8	ai		104	1	B1
	aii		Angles on a straight line sum to 180°	1	B1
	b	$360 - 76 - 130 (=154)$ "154" $\div 2$	77	3	M1 M1 dep A1
c		$360 \div 18$ or $\frac{(2n-4)90}{n} = 162$ or $\frac{(n-2)180}{n} = 162$	20	2	M1 A1

9	(a)	e.g. $\frac{100}{24} \times 30$	125	2	M1	For $\frac{100}{24}$ (=4.16(66..)) or $\frac{30}{24}$ or 1.25 or $\frac{24}{100} = \frac{30}{x}$ oe
					A1	
	(b)	e.g. $\frac{850}{300} \times 24$ or $850 \div \frac{300}{24}$ oe	68	2	M1	Complete method to find number made
					A1	cao
Total 4 marks						

10		$\frac{35}{100} \times 1200$ oe or 420	780	3	M1		[Award M2 for $1200 \times (1 - 0.35)$]
		1200 - "420"			M1	dep	
					A1	SC M1 for 1620	
Total 3 marks							

11		30×20 or 600	399	4	M1	For area of rectangle	
		$\pi \times 8^2$ or 201.(0619298...) or 64π			M1	Indep for area of circle eg $\pi \times 8^2$ or 201.(0619298..) or 64π	
		$30 \times 20 - \pi \times 8^2$			M1		
					A1	Accept 398 -399.1	
Total 4 marks							

12	<table border="1"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>y</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>2</td> <td>0</td> <td>-2</td> </tr> </table>	x	-2	-1	0	1	2	3	4	y	10	8	6	4	2	0	-2	$y = 6 - 2x$ drawn from $x = -2$ to $x = 4$	4	B4 For a correct line between $x = -2$ and $x = 4$
	x	-2	-1	0	1	2	3	4												
	y	10	8	6	4	2	0	-2												
		B3 For a correct straight line segment through at least 3 of $(-2, 10)$ $(-1, 8)$ $(0, 6)$ $(1, 4)$ $(2, 2)$ $(3, 0)$ $(4, -2)$ OR for all of $(-2, 10)$ $(-1, 8)$ $(0, 6)$ $(1, 4)$ $(2, 2)$ $(3, 0)$ $(4, -2)$ plotted but not joined																		
	B2 For at least 2 correct points plotted																			
	B1 For at least 2 correct points stated (may be in a table) OR for a line drawn with a negative gradient through $(0, 6)$ OR a line with gradient -2																			
				Total 4 marks																

13	100^2 or 10 000			M1 e.g. 12×100^2
		120 000	2	A1
				Total 2 marks

14	(b)	$\frac{w^{13}}{w^4}$ or $w \times w^8$ or $w^5 \times w^4$	w^9	2	M1 For $\frac{w^{13}}{w^4}$ or $w \times w^8$ or $w^5 \times w^4$ A1
	(c)		$3 \leq x < 9$	2	M1 For $x \geq 3$ or $x < 9$ or $3 < x \leq 9$ A1 Accept $[3, 9)$ or $9 > x \geq 3$
					Total 4 marks

15a		Correct trapezium (1, -1) (1, -2) (3, 1) (3, -2)		1	B1
b		Correct triangle (-1, -2) (-1, 0) (2, -2)		2	B2 (B1 for a rotation of 90° clockwise about a different centre i.e. a triangle in the same orientation as the correct triangle or rotation by 90° anticlockwise about (0, 2))
					Total 3 marks

16	a		$100 < w \leq 110$	1	B1
	b	$85 \times 3 + 95 \times 5 + 105 \times 7 + 115 \times 4 + 125$ $255 + 475 + 735 + 460 + 125$		3	M2 for frequency \times mid-interval for at least 3 products and summing If not M2 then award M1 for multiplying consistently by value within intervals (eg. end of interval) and summing products or mid-intervals used but not summed.
				2050	A1 SC : B2 for an answer of 102.5
					Total 4 marks

17	$18^2 - (14 \div 2)^2 (=275)$	116	4	M1	or M1 for $\cos x = \frac{7}{18}$ or $\sin y = \frac{7}{18}$ or $\cos z = \frac{18^2 + 18^2 - 14^2}{2 \times 18 \times 18}$
	$\sqrt{18^2 - (14 \div 2)^2}$ or $\sqrt{275}$ or $5\sqrt{11}$ or 16.5... or 16.6			M1	or M1 for $x = \cos^{-1}\left(\frac{7}{18}\right)$ or $x = 67.1\dots$ or $y = \sin^{-1}\left(\frac{7}{18}\right)$ or $y = 22.8\dots$ or $z = \cos^{-1}\left(\frac{18^2 + 18^2 - 14^2}{2 \times 18 \times 18}\right)$ or $z = 45.77\dots$
	$0.5 \times 14 \times "16.5\dots"$ or $35\sqrt{11}$			M1	or M1 for $0.5 \times 14 \times 18 \times \sin("67.1\dots")$ or $0.5 \times 18 \times 18 \times \sin(2 \times "22.8\dots")$ or $0.5 \times 18 \times 18 \times \sin("45.77\dots")$
				A1	116 – 116.1 NB Allow use of Hero's formula
				Total 4 marks	
	<i>Alternative scheme</i>				
	$25(25 - 18)(25 - 18)(25 - 14)(= 13475)$ oe	116	4	M2	
	$\sqrt{13475}$ oe			M1	
				A1	
				Total 4 marks	

18	$160 - 3x + 7x - 20 = 180$ or $2(160 - 3x) + 2(7x - 20) = 360$ oe	10	3	M1	For a correct equation
	e.g. $4x = 180 - 140$ or $-3x + 7x = 180 + 20 - 160$ or $4x = 40$ or $14x - 6x = 360 - 320 + 40$ oe			M1	For isolating the terms in x in a correct equation
				A1	Dep on at least M1
				Total 3 marks	

19	(a)		2	M1	For $3^a \times 5^b \times 11$ with $a = 4$ or $b = 3$
		111375		A1	Accept $3^4 \times 5^3 \times 11$ oe
	(b)		2	M1	For $3^4 \times 5^q$ or $3^p \times 5^2$ (and no 11) or $n \times 3^3 \times 5^2$ where $n \neq 11$
		2025		A1	Accept $3^4 \times 5^2$ oe
					Total 4 marks

20			2	M1	For $y = -2x + c$ ($c \neq 1$) or $y = mx + 1$ or for a correct method to find the gradient or $m = -2$ and $c = 1$ stated or $-2x + 1$ or $L = -2x + 1$
		$y = -2x + 1$		A1	oe
					Total 2 marks

21	a		93 000 000	1	B1
	b		Singapore	1	B1
	c	$1.382 \times 10^9 - 1.327 \times 10^9$ oe or 55 000 000			M1 or for 5.5×10^n $n \neq 7$
			5.5×10^7	2	A1
					Total 4 marks

22	a	$12x = 36$	$x = 3$ oe, $y = -2.5$	3	M1	for addition of given equations or a complete method to eliminate y (condone one arithmetic error)
		e.g. $7 \times "3" + 2y = 16$			M1	(dep) for method to find second variable
					A1	NB. Candidates showing no working score 0 marks
	b	$k^2 + 9k - 5k - 45$	$k^2 + 4k - 45$	2	M1	for 3 correct or all 4 terms correct ignoring signs or $y^2 + 4k + \dots$ or $\dots + 4k - 45$
					A1	
						Total 5 marks