

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

Results Plus data on 92 of the 100 marks:

Paper 1

Edexcel averages:

Year	Paper	Qu. no	New qu. no.	Mean score	Max score	Mean %	ALL	A*	A	B	C	D	E	F	G	U
1706	1F	Q03	Q01	5.42	6	90.3	5.42				5.66	5.51	5.38	5.04	4.23	2.45
1706	1F	Q04	Q02	4.17	5	83.4	4.17				4.71	4.33	3.79	3.09	2.46	1.61
1706	1F	Q05	Q03	3.08	4	77.0	3.08				3.69	3.30	2.71	1.72	0.92	0.16
1706	1F	Q06	Q04	4.28	5	85.6	4.28				4.69	4.34	4.17	3.69	2.52	1.47
1706	2FR	Q06	Q05	1.49	2	74.5	1.49				1.72	1.49	1.36	1.22	1.04	0.67
1706	1F	Q07	Q06	3.24	4	81.0	3.24				3.73	3.46	2.88	2.28	1.32	0.83
1706	1F	Q08	Q07	2.33	3	77.7	2.33				2.81	2.43	1.97	1.44	0.96	0.37
1706	1F	Q09	Q08	3.56	6	59.3	3.56				4.71	3.76	2.54	1.37	0.57	0.19
1706	1F	Q11	Q09	4.39	7	62.7	4.39				5.78	4.45	3.20	2.09	1.06	0.45
1706	1F	Q13	Q10	3.39	5	67.8	3.39				4.01	3.43	3.02	2.26	1.42	0.89
1706	1F	Q14	Q11	2.47	6	41.2	2.47				3.96	2.06	1.00	0.56	0.21	0.06
1706	1F	Q15	Q12	1.86	4	46.5	1.86				2.62	1.86	1.18	0.56	0.20	0.03
1706	1F	Q16	Q13	3.10	4	77.5	3.10				3.65	3.28	2.79	1.92	1.22	0.56
1706	1F	Q17	Q14	1.93	5	38.6	1.93				3.37	1.43	0.55	0.16	0.06	0.03
1706	1F	Q18	Q15	2.06	3	68.7	2.06				2.57	2.09	1.68	1.11	0.70	0.34
1701	1F	Q18	Q16	1.48	3	49.3	1.48				2.23	1.61	1.12	0.78	0.35	0.05
SAMs	2F	Q18	Q17		4											
1701	2F	Q18a	Q18	1.84	3	61.3	1.84				2.67	2.24	1.42	0.56	0.21	0.16
1706	1F	Q20	Q19	0.53	3	17.7	0.53				1.08	0.21	0.06	0.02	0.02	0.00
1706	1F	Q22	Q20	1.84	6	30.7	1.84				2.68	1.65	1.13	0.64	0.36	0.22
1706	1F	Q21	Q21	0.41	2	20.5	0.41				0.72	0.28	0.12	0.05	0.02	0.00
1506	3HR	Q14	Q22	2.51	3	83.7	2.51	2.90	2.63	2.37	1.88	0.86	0.12			0.00
SAMs	1F	Q24	Q23		4											
1706	4HR	Q11	Q24	2.40	3	80.0	2.40	2.91	2.69	2.26	1.62	0.82	0.44			0.10
				57.78	92	62.8	57.78				70.56	54.89	42.63	30.56	19.85	10.64

Q	Working	Answer	Mark	Notes
1 (a)		38,45	2	B2 B1 for 38 shown as sixth term B1 for 45 shown as seventh term ft from their "38" + 7
(b)		added 7	1	B1 for correct explanation E.g. +7, 7 more, jumped forward by 7 oe or $7n - 4$
(c)	$3 + 17 \times 7$ or $7 \times 18 - 4$ or $7n - 4$ or 3, 10, 17, 24, 31, 38, 45, 52, 59, 66, 73, 80, 87, 94, 101, 108, 115, 122 or E.g. $45 + 11 \times 7$			M1 NB: If a list is given then must show a clear intention of adding 7 with at least 4 terms after 45 (condone 1 arithmetic error) E.g. 45, 52, 59, 66, 73 E.g. 38, 45, 52, 59, 66, 73
		122	2	A1 SC : B1 for answer of 115 or 129
(d)		234	1	B1
				Total 6 marks

2	(a)		7	1	B1
	(b)		Bar with height 13 drawn	1	B1
	(c)		Correct explanation	1	B1 Eg $\frac{1}{4}$ of 20 is 5 (not 4); $4 \times 4 = 16$ (MU scored 20); should be $\frac{1}{5}$ (not $\frac{1}{4}$)
	(d)	20 : 2			M1 for 20 : 2 or an answer of 1 : 10 or 1 and 10 with incorrect notation
			10:1	2	A1 allow 1 : 0.1 or 1 : $\frac{1}{10}$
					Total 5 marks

3	(a)	Numbers in order 4, 8, 13, 16, 22, 36, 40, 55, 89			M1 for ascending or descending order. (condone 1 omission)
			22	2	A1
	(b)	89 – 4			M1 or for 4 and 89 seen together E.g. 4 to 89 or $89 - n$ or $m - 4$
				85	2
					Total 4 marks

4	(a)		Yellowknife	1	B1
	(b)	$25 - - 5$ or $25 + 5$ or $-5 - 25$			M1 working may be seen on a number line
			30	2	A1 accept -30
	(c)	$-11 - 6$			M1 or for an answer of 17 working may be seen on a number line
			-17	2	A1
					Total 5 marks

5	(a)		8	1	B1
	(b)		6	1	B1
					Total 2 marks

6	(a)		2 triangles shaded	1	B1
	(b)		0.4	1	B1
	(c)	$6 \times 3.2 - 3 \times -4$ oe			M1 for a correct substitution or for 19.2 and $(-)$ 12 or an answer of 7.2
			31.2	2	A1
					Total 4 marks

7	i		30	1	B1
	ii		32	1	B1
	iii		31 or 37	1	B1 for 31 or 37 or both
					Total 3 marks

8	(a)(i)		radius	1	B1
	(a)(ii)		28	1	B1 accept 26 – 30
	(b)(i)		30	1	B1
	(b)(ii)		angles on a straight <u>line</u> add to <u>180°</u>	1	B1 dep on B1 in (bi) or angles at a <u>point</u> add to <u>360°</u> (and vertically opposite angles are equal)
	(c)(i)		150	1	B1
	(c)(ii)		<u>corresponding</u> angles are equal	1	B1 dep on B1 in (ci)
					Total 6 marks

9	(a)		$3x^2$	1	B1
	(b)				M1 for $-2e$ or $9f$
			$-2e + 9f$ oe	2	A1
	(c)		$8ab$	1	B1
	(d)		48	1	B1
	(e)	E.g. $5y = 14 - 2$ or $-5y = 2 - 14$ or $y + \frac{2}{5} = \frac{14}{5}$			M1 for a correct first step
			$\frac{12}{5}$ oe	2	A1 for $\frac{12}{5}$ oe E.g. $2\frac{2}{5}$ or 2.4
					Total 7 marks

10	(a)		18 07	1	B1
	(b)	60 + (35 – 7) or 53 + 35 or 1 h(our) 28 m(inutes) or 1 : 28			M1 or for clear evidence of working from 6:07 to 7:35 e.g. use of a diagram
			88	2	A1
	(c)				M1 for 3 35 or 8 17 or 15 77 or 3 77 or for clear attempt to add 8 h 42 min onto 7 35
			4 17 am	2	A1 SC: B1 for 04 17 or 4 17 or 4 17 pm or 16 17
					Total 5 marks

11	(a)		$5(2a + 5)$	1	B1
	(b)		$w(7w - 4)$	1	B1
	(c)				M1 for p^3 or $(-)5p^2$
			$p^3 - 5p^2$	2	A1
	(d)	$x^2 + 7x - 3x - 21$			M1 for 3 correct terms or 4 correct terms ignoring signs or $x^2 + 4x + c$ or + 4x - 21
			$x^2 + 4x - 21$	2	A1
					Total 6 marks

12	(a)		Vertices at $(-5, 3)$ $(-5, 9)$ $(-3, 9)$ $(-3, 5)$ $(-1, 5)$ $(-1, 3)$	2	B2 If not B2 then award B1 for shape of correct size and orientation in incorrect position or 4 out of 6 vertices correct
	(b)		Vertices at $(7, -1)$ $(7, -3)$ $(4, -3)$ $(4, -2)$ $(6, -2)$ $(6, -1)$	2	B2 If not B2 then award B1 for correct orientation but incorrect position or B1 for rotation 90° clockwise about $(7, 3)$
					Total 4 marks

13	(a)	E.g. $\frac{300}{4} \times 10$			M1 for a correct scale factor or a correct first step E.g. $\frac{300}{4}$ or 75 or $\frac{10}{4}$ or 2.5 or $300 \div 4 (=75)$
			750	2	A1
	(b)	E.g. $\frac{920}{115} \times 4$			M1 for a correct scale factor or a correct first step E.g. $\frac{920}{115}$ or 8 or $\frac{115}{4}$ or 28.75
			32	2	A1
					Total 4 marks

14	(a)		$3 < L \leq 4$	1	B1 Accept 3 – 4
	(b)	Eg $0.5 \times 4 + 1.5 \times 5 + 2.5 \times 11 + 3.5 \times 14 + 4.5 \times 6$ or $2 + 7.5 + 27.5 + 49 + 27$ or 113			M2 $f \times d$ for at least 4 products with correct mid- interval values and intention to add. If not M2 then award M1 for d used consistently for at least 4 products within interval (including end points) and intention to add or for at least 4 correct products with correct mid-interval values with no intention to add
		$(0.5 \times 4 + 1.5 \times 5 + 2.5 \times 11 + 3.5 \times 14 + 4.5 \times 6) \div 40$ or $113 \div 40$			M1 dep on M1 (ft their products) NB: accept their 40 if addition of frequencies is shown
			2.8	4	A1 Allow 2.82, 2.83 or 2.825
					Total 5 marks

15	(a)				M1 for $\frac{47}{32}$ or 1.46875 or $\frac{121}{25}$ or 4.84 or $\frac{5047}{800}$ or 6.30875 truncated or rounded to at least 1 dp
		6.30875	2		A1
	(b)	6.31	1		B1 ft from (a) provided answer to (a) has more than 3 sig figs
					Total 3 marks

16	96 ÷ 3 (= 32)		3	M1	M2 for $\frac{5}{3} \times 96$
	9 × '32' (=288) or 4 × '32' (=128) or (9 - 4) × '32'			M1 dep	
			160		A1
					Total 3 marks

Question	Working	Answer	Mark	AO	Notes
17	$\frac{1}{2} (10 + 14) \times 9$ oe (= 108) '108' × 6 (=648) '648' × 0.7	453.6	4	AO2	M1 for area of cross section M1 (dep on previous M1) for volume of prism M1 (independent) A1 accept 454
					Total 4 marks

18	0.3 + x + 3x = 1			M1	oe, e.g. 4x = 0.7	M1 for (20 - "6") ÷ 4 (=3.5)
	(1 - 0.3) ÷ 4 or 0.175 or (1 - 0.3) × 0.75			M1	complete method to find x or 3x	M1 for $\frac{3 \times "3.5"}{20}$
		0.525	3	A1	oe, e.g. $\frac{21}{40}$, 52.5%	A1 or 0.525 oe
						Total 5 marks

19	$\cos 22 = \frac{14.9}{AC}$ or $\sin(90 - 22) = \frac{14.9}{AC}$ or $\frac{AC}{\sin 90} = \frac{14.9}{\sin(90 - 22)}$ oe or			M1	M1 for $BC = 14.9 \times \tan 22$ oe (= 6.019 – 6.02) AND $(AC^2 =) 14.9^2 + 6.019...^2$
	$(AC =) \frac{14.9}{\cos 22}$ or $(AC =) \frac{14.9}{\sin 68} (\times \sin 90)$			M1	M1 for $(AC) = \sqrt{14.9^2 + 6.019...^2}$
		16.1	3	A1 Accept 16.07 – 16.1	
					Total 3 marks

20	(a)	668.8 – 640 or 28.8			M1	M2 for $\frac{668.8}{640} (\times 100)$ or 1.045 or 104.5
		"28.8" ÷ 640 (×100) or 0.045			M1 dep	
			4.5	3	A1	
	(b)	$\frac{668.8}{95} \times 100$ oe or $\frac{668.8}{0.95}$ oe			M2	for a complete method If not M2 then award M1 for $\frac{668.8}{95}$ (=7.04) or $0.95x = 668.8$ oe
			704	3	A1	
Total 6 marks						

21	Arc centre Q cutting QP and QR at A and B with $AQ = BQ$ and arcs with same radius centre A and B intersecting in guidelines			M1 for a relevant pair of intersecting arcs within guidelines
		Correct angle bisector	2	A1 dep on M1 SC: B1 for line within guidelines
				Total 2 marks

22	$16x - 8y = 14$ $12x - 8y = 6$ $4x = 8$		3	M1 for appropriate multiplication to get coefficients of x or y the same (condone one arithmetic error) with the correct operation to eliminate one variable or for correct rearrangement of one equation followed by substitution in the other (condone one arithmetic error).
				M1(dep) to find value of second variable ft from value of their first variable
		$x = 2$ $y = 2.25$ oe		A1 Award 3 marks for correct values if at least first M1 scored
				Total 3 marks

Question	Working	Answer	Mark	AO	Notes
23 a		140 000	1	AO1	B1
b		Mars	1	AO1	B1
c	$1.2 \times 10^5 - 5 \times 10^4$ or $120\ 000 - 50\ 000$ or $70\ 000$ oe			AO1	M1
		7×10^4	2		A1

24	7500×0.04 or 300 or 7500×1.04 or 7800 or 7500×1.04^n ($n > 1$) Eg $7500 + \frac{4}{100} \times 7500 + \frac{4}{100} \times (7500 + \text{“300”})$ $+ \frac{4}{100} \times (7500 + \text{“300”} + \text{“312”})$ or $7500 + \text{“300”} + \text{“312”} + \text{“324.48”}$	8436.48	3	M1 For interest for first year or for $7500 \times 0.04 \times 3$ oe or 900 or for $7500 + 7500 \times 0.04 \times 3$ oe or an answer of 8400 For a complete method M1	M2 for 7500×1.04^3 oe
A1 Accept answers in the range 8436 – 8437 NB: Answer in the range 936 -937 gets M2A0					
Total 3 marks					