

## IGCSE (9–1) Maths - practice paper 4F mark scheme

### Results Plus data on 92 of the 100 marks:

#### Paper 4

#### 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	2F	Q01cd	Q01	2.73	4	68.3	2.73				3.24	3.00	2.53	2.08	1.52	0.84
1701	2F	Q03	Q02	2.71	5	54.2	2.71				3.12	2.80	2.57	2.28	1.92	1.40
1701	2F	Q05	Q03	3.29	4	82.3	3.29				3.85	3.65	3.35	2.43	1.42	0.90
1701	2F	Q06	Q04	4.91	7	70.1	4.91				5.86	4.97	4.59	4.03	3.53	2.04
1701	2F	Q07	Q05	3.00	4	75.0	3.00				3.71	3.35	2.86	2.12	1.05	0.64
1701	2F	Q08	Q06	4.76	7	68.0	4.76				5.75	4.93	4.40	3.76	3.01	2.14
1701	2F	Q09	Q07	3.61	5	72.2	3.61				4.42	3.92	3.48	2.70	1.50	0.74
1701	2F	Q10	Q08	2.36	4	59.0	2.36				3.10	2.60	2.13	1.41	0.77	0.28
1701	2F	Q12	Q09	1.58	3	52.7	1.58				2.57	1.74	1.07	0.40	0.11	0.05
1701	2F	Q13ab	Q10	2.17	3	72.3	2.17				2.80	2.53	2.03	1.14	0.52	0.33
1701	2FR	Q14	Q11	1.51	2	75.5	1.51				1.79	1.43	1.11	1.00	0.50	0.00
1701	2F	Q15	Q12	3.32	5	66.4	3.32				4.45	3.68	2.85	1.98	0.95	0.41
1701	2F	Q16	Q13	2.07	3	69.0	2.07				2.70	2.37	1.83	1.19	0.69	0.41
1701	2F	Q17	Q14	0.52	3	17.3	0.52				1.16	0.35	0.11	0.04	0.00	0.00
1701	2F	Q18	Q15	3.15	5	63.0	3.15				4.44	3.77	2.59	1.14	0.55	0.39
1701	3H	Q05cde	Q16	5.03	7	71.9	5.03	6.65	5.99	5.41	4.34	2.49	1.30			0.36
Sp ppr	2F	Q17	Q17		5											
1701	1F	Q22	Q18	1.58	6	26.3	1.58				2.76	1.48	0.98	0.67	0.28	0.02
1706	4HR	Q10	Q19ab	1.91	2	95.5	1.91	1.99	1.97	1.93	1.82	1.57	1.01			0.44
1701	4H	Q04b	Q19c	1.59	2	79.5	1.59	1.92	1.79	1.71	1.40	1.06	0.80			0.37
SAMs	1F	Q23	Q20		3											
1701	2FR	Q24	Q21	2.44	7	34.9	2.44				3.78	1.07	0.75	0.83	0.25	0.00
1601	2F	Q24	Q22	0.58	4	14.5	0.58				1.22	0.22	0.08	0.02	0.00	0.00
				<b>54.82</b>	<b>100</b>	<b>59.6</b>	<b>54.82</b>				<b>68.28</b>	<b>52.98</b>	<b>42.42</b>	<b>29.22</b>	<b>18.57</b>	<b>11.76</b>

Q	Working	Answer	Mark	Notes
1 (a)		1, 2, 5, 7, 10, 14, 35, 70	2	B2 Award B1 for any four correct factors.
(b)	9113 – 738		2	M1 for using 9113 and 738
		8375		A1 cao
				<b>Total 6 marks</b>

2 (a) (i)		(5, 1)	1	B1
(ii)		(3, -1)	1	B1
(b)		$D(3, 3)$ marked	1	B1 Condone omission of $D$ if unambiguous.
(c)			2	M1 For $\frac{2}{4}$ or $\frac{1}{2}$ oe or a clear attempt to work out <u>distance up</u> for $AB$ distance along (condone omission of negative sign)
		$-\frac{1}{2}$		A1 oe
				<b>Total 5 marks</b>

3	(a)		$\frac{8}{24}$	1	B1 oe Eg, $\frac{4}{12}, \frac{2}{6}, \frac{1}{3}$
	(b)		any three squares shaded	1	B1
	(c)	Eg $\frac{30}{100} \times 185$ or $0.3 \times 185$ or $18.5 \times 3$		2	M1 For a complete method  If M1 not awarded then SCB1 for 129.5
			55.5		A1
					<b>Total 4 marks</b>

4	(a)	Square width 6 with hole width 4.	correct shape drawn	1	B1
	(b)		20, 24	1	B1
	(c)	Eg $11 \times 11 - 9 \times 9$ or $9 \times 4 + 4$ or $24 + 4 \times 4$ or (8, 12, 16, 20, 24), 28, 32, 36, 40		2	M1 For a complete method or For a sequence continued to at least the ninth term, following through a single arithmetical error or For $4n + 4$
			40		A1
	(d)		10	1	B1
	(e)		$W = n + 2$	2	B2 oe  B1 for $n + 2$ or $n = W - 2$
					<b>Total 7 marks</b>

<b>5</b>	(a) (i)		$(2+4)\times 6-3$	2	B1
	(ii)		$2+4\times(6-3)$		B1
	(b)	Eg $\frac{16}{2}-\frac{18}{3}$ or $8-6$ or $\frac{48}{6}$ or $\frac{12}{6}$		2	M1 For a complete method
			2		A1 cao
<b>Total 4 marks</b>					

<b>6</b>	(a)		45000	1	B1
	(b)		France	1	B1
	(c)	height 28000	correct bar drawn	1	B1 any width
	(d)	155-26		2	M1 For 155-26
			129		A1
	(e)	$\frac{45+1}{2}$ or 23 or $\frac{45}{2}$ or 22.5		2	M1 For an ordered list at least as far as the first 2
			2		A1
<b>Total 7 marks</b>					

<b>7</b>	(a) (i)		69	2	B1 allow -69
	(ii)		98		B1 allow -98
	(b)		-235	1	B1
	(c)	Eg $\frac{458+14-55-153-214}{5}$ or $\frac{50}{5}$		2	M1 For a complete method
			10		A1
<b>Total 5 marks</b>					

<b>8</b>	(a)	$12 \times 12.19$		2	M1 accept 12 or 12.2 or 12.19 multiplied by a value in the range 9 to 15
			146		A1 accept 108 to 183
	(b)	$6.2 \times 2.4 \times 2.5$		2	M1
			37.2		A1
					<b>Total 4 marks</b>

<b>9</b>		Eg $\frac{715.5}{530} \times 750$ or $1.35 \times 750$ oe Or $\frac{750}{530} \times 715.5$ or $1.41(509...) \times 715.5$ oe Or $750 \div \frac{530}{715.5}$ or $715.5 \div \frac{530}{750}$ oe		3	M2 For a complete method  If not M2 then M1 for $\frac{715.5}{530}$ or 1.35 oe or $\frac{530}{715.5}$ or 0.740(740...) oe or $\frac{750}{530}$ or 1.41(509...) oe $\frac{530}{750}$ or 0.706(666...) oe $530x = 750 \times 715.5$
			1012.50		A1 Accept 1012.5
					<b>Total 3 marks</b>

<b>10</b>	(a)		$6x^2$	1	B1
	(b)	Eg $2 \times 12 - 5 \times 3$ or $24 - 15$		2	M1 For a correct substitution
			9		A1
					<b>Total 2 marks</b>

<b>11</b>		$\frac{4}{2}(6 + 10)$		2	M1 For a complete method. A1
			32		
					<b>Total 2 marks</b>

<b>12</b>	(a) (i)		9.746794345	2	B1 Allow 9.7467(94345...) rounded or truncated to at least 5SF
	(ii)		9.75		B1 ft if at least 3DP given in (i)
	(b) (i)	$\frac{256}{36 - \pi}$ or $\frac{256}{32.8(584\dots)}$		3	M1 For 32.8(58...) rounded or truncated to at least 3SF seen
			7.791004515		A1 Allow 7.791(0045...) rounded or truncated to at least 4SF
	(ii)		7.79		B1 ft if at least 4SF given in (i)
					<b>Total 5 marks</b>

<b>13</b>	(a) (i)		$\frac{3}{7}$	1	B1
	(ii)		$\frac{9}{5}$	1	B1
	(b)		35	1	B1
					<b>Total 3 marks</b>

<b>14</b>	(a)	a, b, d, e	a, b, d, e	2	B2 B1 for a, e <b>or</b> a, b, d <b>or</b> b, d, e <b>or</b> a, b, e <b>or</b> a, d, e <b>or</b> a, b, c, d, e <b>or</b> a, b, d, e, f or a Venn diagram with a, c, e, f correctly shown
	(b)		c, e, f	1	B1
					<b>Total 3 marks</b>

<b>15</b>	(a)	$1-0.4-0.2-0.1$ or $0.3$		3	M1
		$\frac{1-0.4-0.2-0.1}{2}$ or $\frac{"0.3"}{2}$			M1 dep
			0.15		A1
	(b)	$200 \times 0.4$		2	M1
			80		A1 Note: Award M1A1 for 80 out of 200 Award M1A0 for 80/200
					<b>Total 5 marks</b>

<b>16</b>	(a)	$7 \times (-2)^2 + 5$ or $7 \times 4 + 5$ or $7(-2)^2 + 5$		2	M1 for correct substitution <b>or</b> $7 \times 4$ <b>or</b> 28
			33		A1
	(b)	$5q - 15 (= 12 - q)$ or $q - 3 = \frac{12}{5} - \frac{q}{5}$		3	M1
		E.g. $5q + q = 12 + 15$ or $6q = 27$			M1 For a correct equation with the $q$ terms collected on one side of the equation and the non $q$ terms on the other side.  ft from $5q - 3 = 12 - q$ for this mark only
			4.5		A1 for 4.5 <b>or</b> $\frac{9}{2}$ oe dep on at least M1
	(c)	$-7t \geq 31 - 3$ or $7t \leq 3 - 31$ oe		2	M1 $-7t \geq 31 - 3$ <b>or</b> $7t \leq 3 - 31$ <b>or</b> $-4$ <b>or</b> $t \geq -4$ accept an equation or the wrong inequality sign in the working
			$t \leq -4$		A1 or for $-4 \geq t$
					<b>Total 7 marks</b>

<b>17</b>	(a)		$4n + 3$	2	B2 B1 for $4n + x$ where $x$ is any integer
	(b)		78, 76, 74	2	B2 B1 for one correct term
	(c)		Correct reason	1	B1 The first sequence is only odd numbers and the second is only even numbers
					<b>Total 5 marks</b>



<b>18</b>	(a)	18 ÷ 60 oe or 7.3 or $7\frac{18}{60}$ or $7\frac{3}{10}$ or $7 \times 60 + 18 (=438)$		3	M1 for changing time to a decimal (7.3)
		$750 \times "7.3"$ oe or $750 \times \frac{"438"}{60}$ oe			M1 for speed × time (allow $750 \times 7.18$ or answer of 5385)
			5475		A1
	(b)	for at least one correct operation eg. $750 \times 1000$ , $750 \div 60$ or $\frac{1000}{60 \times 60} (=0.27\dots)$ or $\frac{5}{18}$		3	M1 for <b>one or two</b> of $\times 1000$ , $\div 60$ , $\div 60$ (can be implied by 750 000 or 12.5 or 12500 or 0.2083)
		$\frac{750 \times 1000}{60 \times 60}$ oe			M1 complete correct method
			208		A1 accept answers in range 208 – 208. $\dot{3}$
		Alternative mark scheme ft from (a) "5475" × 1000 (=5475000) OR $7 \times 60 + 18 = 438$ and $438 \times 60 (=26280 \text{ (sec)})$ "5475000" ÷ 26280		3	M1
					M1 dep complete correct method
			208		A1 accept answers in range 208 – 208. $\dot{3}$
					<b>Total 6 marks</b>

<b>19</b>	(a)		22 000 000	1	B1
	(b)		$9.5 \times 10^5$	1	B1
	(c)			2	M1 for 0.06 oe or $6 \times 10^n$ where $n$ is a negative integer other than -2
			$6 \times 10^{-2}$		A1
					<b>Total 4 marks</b>

Question	Working	Answer	Mark	AO	Notes	
20	22.50 ÷ 15 (=1.5) or 100 ÷ 15 (=6.6...)	150	3	AO1	M1	M2 for 22.5 ÷ 0.15
	'1.5' × 100 (=150) or '6.6...' × 22.5(0)			M1	dep	
	A1					
<b>Total 3 marks</b>						

21	(a)	$\cos x = \frac{60}{110}$ or $\cos x = 0.545(4545\dots)$		3	M1
		$(x =) \cos^{-1}\left(\frac{60}{110}\right)$			M1
			<b>56.9</b>		A1 56.9 – 57
	(b)	90 – 56.9(4426885...) oe	033	2	M1ft for complete method, ft from (a) if "(a)" < 90, 90 – their x A1ft accept (0)33 – (0)33.1 or ft
	(c)(i)		<b>105</b>	2	B1
	(c)(ii)		<b>115</b>		B1 Accept 114.9 <sup>•</sup>
<b>Total 7 marks</b>					

22	$180 - \frac{360}{10}$ or $\frac{(10-2)\times 180}{10}$ or 144 oe	108	4	M1	Unless inconsistently labelled
	$\frac{180 - '144'}{2}$ or 18			M1	Or M2 for $144 - (180 - 144)$
	'144' - 2 × '18'			M1	
				A1	dep on M1
	<i>Alternative</i>				
	Pentagon approach – drawing in a pentagon or a statement recognising that the required angle is one of a regular pentagon	108	4	M1	May be implied by further work
	$180 - \frac{360}{5}$ or $\frac{(5-2)\times 180}{5}$			M2	(M1 for exterior angle of pentagon as long as not seen as interior angle or given as answer)
				A1	dep on M1
				<b>Total 4 marks</b>	