

1MA1 Practice papers Set 2: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
1.			7.8	B1	cao
2.			7	B1	cao
3.			7.84	B1	cao
4.			25	B1	cao
5.	(a)		2, 3, 6, 7, 8	2	B2 for 2, 3, 6, 7, 8 (B1 for any 3 or 4 correct, no extras or 2, 3, 6, 7, 8 seen with at most one extra)
	(b)		3,8	1	B1 cao
6.	(a)(i)		23	2	B1 cao
	(ii)		284		B1 cao
	(b)(i)		71 + 95 or 91 + 75	2	B1 for showing addition of 71 and 95 or 91 and 75
	(ii)		166		B1ft for the sum of their two numbers given provided they used only the digits 5, 1, 7 and 9 exactly once each
7.	(a)		(4, 2)	1	B1 cao
	(b)		(-3, 0) plotted	1	B1 cao

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Question		Working	Answer	Mark	Notes
8.	(a)		Correct diagram	1	B1 for correct diagram, accept squares drawn at either end shaded or unshaded. Ignore internal lines.
	(b)		17, 21	1	B1 cao
	(c)		41	1	B1 cao
9.			3 and 12	2	M1 for using two numbers that are both factors of 24 or using two numbers that sum to 15 and one is a factor of 24 A1 for 12 and 3
10.			Triangle drawn	2	M1 for a triangle with at least one side of length 5 cm (± 0.2) or at least one angle 60° ($\pm 2^\circ$) A1 for a correct triangle
11.		$14 + 19 = 33$ $57 - 29 = 28$ (or -28) $9 \times 4 = 36$	the product of 9 and 4 has the greatest value	3	M1 for evidence of one correct operation e.g. $14 + 19$ or 33 OR $57 - 29$ or 28 or $29 - 57$ or -28 OR 9×4 or 36 A1 33, 28 (or -28) and 36 C1 (dep on M1) ft for a statement identifying the correct calculation (not the biggest answer) from three calculated values

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Question		Working	Answer	Mark	Notes
12.	(a)		08 12	1	B1 cao
	(b)		6	2	M1 for evidence of counting on 15 minutes from 09 20, could be shown with table A1 cao
	(c)		17 35	1	B1 cao
13.	(a)		60	2	M1 for $300 \div 5$ or $3 \div 5$ (or equivalent) A1 cao
	(b)		25p or £0.25	3	M1 for $100 \div 5 (= 20)$ M1 for “20” $\div 80$ or “20” $\times 100 \div 80$ A1 for 25p or £0.25 OR M1 for $80 \times 5 (= 400)$ M1 for $100 \div “400”$ or $100 \times 100 \div “400”$ A1 for 25p or £0.25 OR M1 for $100 \div 80 (= 1.25)$ M1 for “1.25” $\div 5$ or “1.25” $\times 100 \div 5$

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Question		Working	Answer	Mark	Notes
					A1 for 25p or £0.25
14.			5.7	3	M1 for $20 - 8.6$ (=11.4) M1 for '11.4' $\div 2$ A1 cao or M1 for $2x + 8.6 = 20$ (or equivalent) M1 for clear intention to subtract 8.6 from each side A1 cao
15.	(a)		5	1	B1 cao
	(b)		evens	1	B1 cao
	(c)		$\frac{2}{6}$	2	M1 for $\frac{a}{6}$ where $a < 6$ or $\frac{2}{b}$ where $b > 2$ A1 for $\frac{2}{6}$ (or equivalent)

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Question	Working	Answer	Mark	Notes																																								
16.	<p>1195 4780 + 5975</p> <table border="1" data-bbox="414 427 743 627"> <tr><td></td><td>2</td><td>3</td><td>9</td><td></td></tr> <tr><td>0</td><td>4</td><td>0</td><td>6</td><td>1</td><td>8</td><td>2</td></tr> <tr><td>5</td><td>1</td><td>0</td><td>1</td><td>5</td><td>4</td><td>5</td><td>5</td></tr> <tr><td></td><td>9</td><td>7</td><td>5</td><td></td><td></td><td></td><td></td></tr> </table> <table border="1" data-bbox="403 659 772 778"> <tr><td></td><td>200</td><td>30</td><td>9</td></tr> <tr><td>20</td><td>4000</td><td>600</td><td>180</td></tr> <tr><td>5</td><td>1000</td><td>150</td><td>45</td></tr> </table> <p>4000 + 1000 + 600 + 150 + 180 + 45 = 5975</p>		2	3	9		0	4	0	6	1	8	2	5	1	0	1	5	4	5	5		9	7	5						200	30	9	20	4000	600	180	5	1000	150	45	Kirsty's Plants with correct calculations	5	<p>M1 for complete method with relative place value correct. Condone 1 multiplication error, addition not necessary.</p> <p>M1 (dep) for addition of all the appropriate elements of the calculation or digits 5975</p> <p>M1 for a complete method to find 120% of £52.50 A1 for 59.75 and 63(.00) C1 (dep on M2) for correct conclusion for their figures</p> <p>OR</p> <p>M1 for the start of a method to divide £52.50 by 25, eg 2 rem 2</p> <p>M1 for a complete method to divide £52.50 by 25, condone one arithmetic error, or digits 21</p> <p>M1 for a complete method to find 120% of '£2.10' A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures</p> <p>OR</p> <p>M1 for a complete method to find 120% of £52.50</p> <p>M1 for the start of a method to divide '63' by 25, e.g.. 2 rem 13</p> <p>M1 for a complete method to divide '63' by 25, condone one arithmetic error, or digits 252</p>
	2	3	9																																									
0	4	0	6	1	8	2																																						
5	1	0	1	5	4	5	5																																					
	9	7	5																																									
	200	30	9																																									
20	4000	600	180																																									
5	1000	150	45																																									

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Question		Working	Answer	Mark	Notes
					A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures
17.	(a)		8	1	B1 for 8 (.00)
	(b)		550	4	M1 for 600 – 200 (= 400) M1 for correct method to convert ‘\$400’ to £ M1 (dep on the previous M1) for 800 – ‘\$400’ in £s A1 for value in the range 540 – 560 OR M1 for correct method to convert \$600 and \$200 to pounds M1 for ‘375’–‘125’ M1 (dep on the previous M1) 800 – ‘250’ A1 for a value in the range 540-560 OR M1 for correct method to convert £800 to dollars M1 for ‘1280’ + 200 – 600 M1 (dep on the previous M1) for attempt to convert ‘\$880’ back to £ A1 for value in the range 540 – 560

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Question		Working	Answer	Mark	Notes
18.		$1.96 \times 2.25 = 4.41$ OR $4.23 \div 9 = 0.47$ $1.96 \div 4 = 0.49$ OR $4.23 \times 4 = 16.92$ $1.96 \times 9 = 17.64$ OR $4.23 \div 9 = 0.47$ $0.47 \times 4 = 1.88$ OR $1.96 \div 4 = 0.49$ $0.49 \times 9 = 4.41$ OR $9 \div 4.23 = 2.12$ $4 \div 1.96 = 2.04$	Pack of 9	3	<p>M2 for a fully correct method to enable a conclusion eg $1.96 \times 2\frac{1}{4}$</p> <p>OR</p> <p>M1 for $4.23 \div 9$ or $423 \div 9$ or 0.47 seen or 47 seen M1 for $1.96 \div 4$ or $196 \div 4$ or 0.49 seen or 49 seen</p> <p>OR</p> <p>M1 for 4.23×4 or 423×4 or 16.92 seen or 1692 seen M1 for 1.96×9 or 196×9 or 17.64 seen or 1764 seen</p> <p>OR</p> <p>M1 for $4.23 \div 9$ or $423 \div 9$ or 0.47 seen or 47 seen M1 for 0.47×4 or 47×4 or 1.88 seen or 188 seen</p> <p>OR</p> <p>M1 for $1.96 \div 4$ or $196 \div 4$ or 0.49 seen or 49 seen M1 for 0.49×9 or 49×9 or 4.41 seen or 441 seen</p> <p>OR</p> <p>M1 for $9 \div 4.23$ or 2.12(...) seen or 2.13 seen M1 for $4 \div 1.96$ or 2.04(...) seen</p> <p>A1 for Pack of 9 and fully correct calculations</p> <p>NOTE: B0 for an answer of 9 not supported by working.</p>
19.	(a)			1	M1 $90 \div 1.5 (=60)$
				1	M1 $240 \div 60 (= 4 \text{ hours})$

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Question		Working	Answer	Mark	Notes
	(b)		13:30	1	A1
			Assumption and affect	1	C1 e.g. assumed constant speed – if not constant than could arrive earlier or later. Assumed no stops – if stop then will arrive later
20.			Rotation Centre (0,0) 90° clockwise	3	B1 for rotation B1 for 90° clockwise or 270° anticlockwise B1 for (0, 0) or <i>O</i> or origin NB: a combination of transformations gets B0
21.		$(7 \times 2 + 2 \times 5) \times 200 = 4800$ 4800×8	38 400 g	5	M1 for 7×2 or 2×5 or 7×7 or 5×5 or 2×2 M1 for ' 7×2 ' + ' 2×5 ' (or equivalent) or ' 7×7 ' – ' 5×5 ' M1(dep on first M) for ' 24 ' \times 200 or ' 0.0024 ' \times 2 M1 for ' 4800 ' \times 8 or ' 0.0048 ' \times 8 000 000 or ' 0.0048 ' \times 8000 A1 for 38 400g or 38.4kg (SC B3 for any answer including digits 384)

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Question		Working	Answer	Mark	Notes														
22.	(a)	$y = 3x + 5$ <table border="1" style="margin-left: 20px; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">x</td> <td style="padding: 2px 5px;">-2</td> <td style="padding: 2px 5px;">-1</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> </tr> <tr> <td style="padding: 2px 5px;">y</td> <td style="padding: 2px 5px;">-1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">11</td> <td style="padding: 2px 5px;">14</td> </tr> </table>	x	-2	-1	0	1	2	3	y	-1	2	5	8	11	14	Correct line from $(-2, -1)$ to $(3, 14)$	3	<p>(Table of values / calculation of values)</p> <p>M1 for at least 2 correct attempts to find points by substituting values of x.</p> <p>M1 ft for plotting at least 2 of their points (any points plotted from their table must be correctly plotted)</p> <p>A1 for correct line between $x = -2$ and $x = 3$</p> <p>(No table of values)</p> <p>M1 for at least 2 correct points with no more than 2 incorrect points</p> <p>M1 for at least 2 correct points (and no incorrect points) plotted</p> <p>OR line segment of $y = 3x + 5$ drawn A1 for correct line between $x = -2$ and $x = 3$</p> <p>(Use of $y = mx + c$)</p> <p>M1 for line drawn with gradient of 3 OR line drawn with a y intercept of 5</p> <p>M1 for line drawn with gradient of 3 AND line drawn with a y intercept of 5</p> <p>A1 for correct line between $x = -2$ and $x = 3$</p>
x	-2	-1	0	1	2	3													
y	-1	2	5	8	11	14													

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Question		Working	Answer	Mark	Notes
					SC : B2 for the correct line from $x = 0$ to $x = 3$
	(b)	$3 \times 6 + 5 = 18 + 5$ Or $24 - 5 = 19$ $19 \div 3$	Correct explanation	2	M1 $3 \times 6 + 5$ or “18” + 5 or (6, 23) C1 for 23 seen and correct conclusion or M1 $24 - 5$ or “19” $\div 3$ C1 for $\frac{19}{3}$ (or equivalent) or 6.3... seen and correct conclusion
23.	(a)	$1 - 0.37$	0.63	1	B1 for 0.63 (or equivalent)
	(b)	0.37×500	185	2	M1 for 0.37×500 A1 cao SC B1 for 200

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24.		$4000 - \left(\frac{10}{100} \times 4000\right) = 3600$ $3600 - \left(\frac{10}{100} \times 3600\right)$	3240	3	M1 for $4000 - \frac{10}{100}$ or 0.9×4000 (or equivalent) or 3600 or 400 or 3200 or 800 seen M1 (dep) 10 "3600" $-\frac{10}{100} \times$ "3600" or "3600" $\times 0.9$ (or equivalent) A1 cao or M2 for 29.04000×0.9^2 (M1 for 4000×0.9^3) A1 cao [SC: B2 for an answer of £4840, with or without working]
25.		$0.38 \times 10^{-1}, 3800 \times 10^{-4},$ $0.038 \times 10^2, 380$	Correct order	2	M1 changing any one correctly or at least 3 in the correct order (ignoring one) or reverse order A1 for correct order (accept any form)

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26.			48	5	M1 for $8 - 2 (= 6)$ M1 (indep) for $x^2 + 8^2$ (provided $x \leq 8$) M1 (dep on previous M1) for $\sqrt{(x^2 + 8^2)}$ or $\sqrt{100}$ M1 (dep on M2) for $4 \times 2 + 4 \times "10"$ A1 cao

National performance data from Results Plus

Qu No	Source of questions					Max score	Mean % all	Mean scores of students achieving grade:						
	Spec	Paper	Session	Qn	Topic			ALL	C	D	E	F	G	
1				New	Conversions	1	No data available							
2				New	Percentages	1	No data available							
3				New	Decimals	1	No data available							
4				New	Index laws	1	No data available							
5	5MM1	1F	1206	Q09	Venn diagrams	3	79	2.36	2.68	2.55	2.43	2.20	1.96	
6	1MA0	1F	1311	Q05	Substitute into expressions	4	72	2.88	3.26	3.00	2.85	2.69	2.45	
7	5MM1	1F	1406	Q09	Coordinates in 2D	2	92	1.83	1.96	1.90	1.84	1.82	1.63	
8	2540	1F	0811	Q08	Pattern sequences	3	77	2.32	2.63	2.41	2.21	1.96	1.53	
9	5MM1	1F	1506	Q09	Factors, multiples, primes	2	77	1.53	1.94	1.79	1.58	1.27	0.80	
10	1MA0	1F	1311	Q21	Constructions	2	80	1.59	1.87	1.74	1.57	1.37	1.13	
11	5MM1	1F	1306	Q12	Four operations	3	65	1.95	2.57	2.39	2.06	1.61	1.06	
12	1MA0	1F	1506	Q07	Time calculations	4	49	1.96	2.87	2.44	2.05	1.60	1.18	
13	1MA0	1F	1406	Q14	Money calculations	5	35	1.73	2.99	2.36	1.86	1.34	0.86	
14	5MM1	1F	1406	Q12	Decimals	3	52	1.56	2.65	2.14	1.67	0.73	0.19	
15	1MA0	1F	1411	Q10	Probability	4	59	2.36	2.82	2.53	2.28	1.98	1.67	
16	1MA0	1H	1506	Q04	Percentages - VAT	5	79	3.96	4.04	2.97	1.52			
17	1MA0	1H	1303	Q06	Conversion graphs	5	62	3.11	3.06	2.11	1.30			
18	1MA0	1F	1206	Q19	Ratio	3	27	0.81	1.73	1.00	0.51	0.20	0.08	
19				New	Compound measures	4	No data available							
20	5MM1	1F	1211	Q27	Transformations	3	32	0.96	2.32	1.45	0.81	0.33	0.33	
21	1380	1F	1106	Q29	Compound measures	5	10	0.52	1.25	0.58	0.27	0.13	0.07	
22	5MM1	1H	1306	Q09	Graphs of linear functions	5	79	3.94	3.67	2.46	1.00	0.89	1.67	
23	5MM1	1H	1211	Q09	Probability	3	71	2.12	1.80	1.33	2.00			
24	1380	1H	1006	Q19	Compound interest	3	70	2.09	1.59	0.96	0.58			
25	1MA0	1H	1211	Q20	Standard form	2	60	1.20	1.20	0.73	0.46			
26	1MA0	1H	1511	Q13	Derive expressions	3	8	0.23	0.22	0.08	0.05			
						80								