1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		25000	1	B1 cao
	(b)		24600	1	B1 cao
2	(a)		08 30	1	B1 for 08 30 oe
	(b)		17	1	B1 cao
	(c)		10 15	1	B1 for 10 15 oe
3	(i)		Cone	2	B1 (accept incorrect spelling if intention is clear)
	(ii)		Cylinder		B1 (accept incorrect spelling if intention is clear)
4	(a)		98 145 358 709 835	1	B1 cao
	(b)		–8 –5 –1 4 7	1	B1 cao
	(c)	(0.2, 0.25, 0.4, 0.5, 0.75) $(\frac{4}{20}, \frac{5}{20}, \frac{8}{20}, \frac{10}{20}, \frac{15}{20})$ (20%, 25%, 40%, 50%, 75%)	0.2 $\frac{1}{4}$ 40% 0.5 $\frac{3}{4}$	2	M1 for two correct conversions into the same form A1 cao
5	(a)		$4x$	1	B1 cao
	(b)		$3y$	1	B1 cao
	(c)		$8p$	1	B1 cao
6	(a)		mark at 1	1	B1 for × within the overlay (within 1 cm of 1)
	(b)		mark at $\frac{1}{4}$	1	B1 for × within the overlay (between 2 and 4 cm from 0)

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Question		**Working**	**Answer**	**Mark**	**Notes**
7		6, 11, 16, ...	51	3	M1 for a correct pattern number (> 3) drawn M1 for pattern number 10 drawn A1 cao **OR** M1 for 6, 11, 16, (...) or + 5 seen M1 for continuing the sequence to at least the10th term (condone one arithmetic error) A1 cao **OR** M1 for $5n$ M1 for $5\times10 + 1$ oe or $5n + 1$ A1 cao
8		F + C + S 30 + 7 + 8 = 45 3×20 – 45 = 15	15	4	M2 for 30 + 7 + 8 (= 45) (M1 for 12 × 2 + 7 × 3 + 8 (= 53) or 12 × 2 + 7 × 2 (= 38)) M1 (dep on at least M1) for "20 × 3" – "45" or "20 × 3" – "53" A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
9			1.2 m or 120 cm	4	B1 for evidence of using 1 m = 100 cm M1 for subtracting the four post widths from the total length eg $4 - 4 \times 10$ (= 360) or "400" $- 4 \times 10$ or $3x + 40 = 400$ (oe) M1 for dividing their total space found by 3 or subtracting 40 from both sides of $3x + 40 = 400$ C1 for correct conclusion for 1.2 m or 120 cm with supported working
10	(a)		Correct explanation	2	M1 for working out area of triangle (=6) and area of rectangle (=24) **or** for dividing rectangle into eighths or other comparable areas A1 for explaining that that 24 ÷ 6 is 4 **or** $\frac{2}{8} = \frac{1}{4}$ **or** that ½ × ½ = ¼ from symmetry of shape
	(b)		75	1	B1 cao
11	(a)(i)		(–2, –3)	2	B1 cao
	(a)(ii)		Cross at (5, 2)		B1
	(b)		$y = 3$	1	B1 for correct line (at least 2 cm spanning the y axis)

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Question		**Working**	**Answer**	**Mark**	**Notes**
12			$\frac{29}{40}$	3	M1 for writing $\frac{7}{10}$ as $\frac{28}{40}$ **or** $\frac{3}{5}$ as $\frac{24}{40}$ M1 for writing $\frac{7}{10}$ as $\frac{28}{40}$ **and** $\frac{3}{5}$ as $\frac{24}{40}$ C1 for correct conclusion with supportive evidence
13	(a)		30	2	M1 for 25 ÷ 10 or 2.5 seen or 10 ÷ 25 or 0.4 seen or 12 + 12 + 6 oe or a complete method, e.g. 25 × 12 ÷ 10 oe A1 cao
	(b)	1000 ÷ 200 × 12	60	2	M1 for 500 ÷ 50 or 1000 ÷ 200 or 500 ÷ 10 OR correct scale factor clearly linked with one ingredient, e.g. 10 with sugar or 5 with butter or flour or 50 with milk OR answer of 120 or 600 A1 cao
14			900	4	M1 for 0.2 × 7000 (= 1400) or 1.2 × 7000 (= 8400) oe M1 for 7000 + "1400" − 3000 (= 5400) oe M1 for "5400" ÷ 6 A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
15		Acton after 24, 48, 72, 96... Barton after 20, 40, 60, 80. LCM of 20 and 24 is 120 9:00 am + 120 minutes **OR** Acton after 24, 48, 1h 12m Barton after 20, 40, 1 h LCM is 2 hours 9:00 am + 2 hours **OR** Times from 9:00 am when each service leaves the bus station Acton at 9:24, 9:48, 10:12 Barton at 9:20, 9:40, 10:00 **OR** $20 = 2 \times 2 \times 5$ $24 = 2 \times 2 \times 2 \times 3$ $2 \times 2 \times 2 \times 3 \times 5 = 120$	11:00 am	3	M1 for listing multiples of 20 and 24 with at least 3 numbers in each list ; multiples could be given in minutes or in hours and minutes (condone one addition error in total in first 3 numbers in lists) A1 identify 120 (mins) **or** 2 (hours) as LCM A1 for 11:00 (am) **or** 11(am) **or** 11 o'clock **OR** M1 for listing times after 9am when each bus leaves the bus station, with at least 3 times in each list (condone one addition error in total in first 3 times after 9 am in lists) A1 for correct times in each list up to and including 11:00 A1 for 11:00 (am) **or** 11(am) **or** 11 o'clock **OR** M1for correct method to write 20 and 24 in terms of their prime factors 2, 2, 5 and 2, 2, 2, 3 (condone one error) A1 identify 120 as LCM A1 for 11:00 (am) **or** 11(am) **or** 11 o'clock

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Question		**Working**	**Answer**	**Mark**	**Notes**
16	(a)		9.4	1	B1 cao
	(b)		Diagram or chart	4	B1 for a key, or suitable labels, to identify regular yoghurt and low fat yoghurt. B1 for diagram(s) or chart(s) set up for comparison, showing data for protein, carbohydrate and fat, e.g. dual bar chart, line graph, etc B1 for correct heights for regular yoghurt **or** low fat yoghurt, dependent on a linear scale C1 for a fully correct diagram or chart to include labels for protein, carbohydrate and fat and vertical axis correctly scaled and labelled
17	(a)		Shape with vertices at (–1, 3), (0, 6), (2, 6), (1, 3)	1	B1 for correct shape in correct position
	(b)		Rotation centre (0,0) 90˚ anticlockwise	3	B1 rotation B1 (centre) (0,0) B1 90˚ anticlockwise or 270˚ clockwise Note: award no marks if more than one transformation is given

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Question		**Working**	**Answer**	**Mark**	**Notes**
18	(a)		1	1	B1 cao
	(b)		$\frac{1}{100}$	1	B1 for $\frac{1}{100}$ or 0.01
	(c)		0.00273 27.3×10^{-3} 2.73×10^{3} 273×10^{2}	2	M1 for converting all numbers to same form with at least one conversion correct A1 for fully correct order with correct numbers in any correct form (SC B1 if one number incorrectly placed or all 4 numbers listed in reverse order)
19	(a)		$\frac{5}{8}$ $\frac{5}{8}, \frac{3}{8}, \frac{5}{8}$	2	B1 for $\frac{5}{8}$ correct for 1st counter B1 for $\frac{5}{8}, \frac{3}{8}, \frac{5}{8}$ correct for 2nd counter
	(b)	$\frac{3}{8} \times \frac{3}{8}$	$\frac{9}{64}$ oe	2	M1 for $\frac{3}{8} \times \frac{3}{8}$ A1 for $\frac{9}{64}$ oe

<table>
<tr><th colspan="5">1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0</th></tr>
<tr><th colspan="2">Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>20</td><td></td><td><table><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><td>5</td></tr><tr><td>y</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>–1</td></tr></table></td><td>graph</td><td>3</td><td>(Table of values)
M1 for at least 2 correct attempts to find points by substituting values of x
M1 ft for plotting at least 2 of their points
(any points plotted from their table must be correct)
A1 for correct line between $x = –2$ and $x = 5$
or
(No table of values)
M2 for at least 2 correct points (and no incorrect points) plotted
or line segment of $x + y = 4$ drawn
(M1 for at least 3 correct points plotted with no more than 2 incorrect)
A1 for correct line between $x = –2$ and $x = 5$
or
(Use of $y = mx + c$)
M2 for at least 2 correct points (and no
incorrect points) plotted
(M1 for $y = 4 – x$ or line drawn with
gradient of –1 or line drawn with a y
intercept of 4 and a negative gradient)</td></tr>
</table>

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
					A1 for correct line between $x = -2$ and $x = 5$
21			9	4	M1 for method to find area of one rectangle, eg 15×8 (= 120) or 15×11 (= 165) M1 (dep) for subtracting from/by given area, eg (138 – "120") (= 18) or "165" – 138 (= 27) M1 for final step from complete method shown, eg 15 − "18"÷ 3 or "27" ÷ 3 A1 cao **OR** M1 for a correct expression for the area of one rectangle, eg $(8 + 3) \times (15 - x)$ or $8 \times x$ M1 (dep) for a correct equation eg $(8 + 3) \times (15 - x) + 8 \times x = 138$ M1 for correct method to isolate x, eg $3x = 27$ A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
22			Proof	4	M1 for setting up a correct equation in x, eg. $3x - 2 = x + 1$ M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$ M1 (dep) for ("1.5" + 1) × 4 or (3 × "1.5" – 2) × 4 or (3 × "1.5" – 2) × 2 + ("1.5"+ 1) × 2 C1 (dep on M3) for completing the proof resulting in a perimeter of 10 **OR** M1 for setting up a correct equation in x, eg. $2(3x - 2) + 2(x + 1) = 10$ M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$ M1 (dep) for "1.5" + 1 and 3 × "1.5" – 2 C1 (dep on M3) for completing the proof resulting in a justification that the shape is a square

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Question		**Working**	**Answer**	**Mark**	**Notes**
23		P: T: B = 1: 3: 6 54 ÷ 10 × 6 **OR** e.g. T = 3P B = 2T So, B = 2(3P) = 6P P+T+B=P+3P+6P=10P P = 54÷10 = £5.40 B = 6×£5.40	32.40	3	M1 for 1 : 3 : 6 or any three numbers in the ratio 1:3:6 in any order M1 for 54 ÷ (1 + 3 + 6) × 6 A1 for 32.4(0) **Alternative** M1 for 1: 3: 6 oe or P + 3P + 6P (=10P) oe, e.g. T/3 + T + 2T (=10T/3) or e.g. B/6 + B/2 + B (=10B/6) or 5.4(0) or 16.2(0) seen M1 for 54 ÷ 10 × 6 or [54 $\frac{\div' 10}{3'}$] × 2 or 54 $\frac{\div' 10}{6'}$ oe A1 for 32.4(0) OR M1 for a partial decomposition of £54 in ratio 1:3:6, e.g. (£)5 +(£)15 + (£)30 (=(£)50) M1 for a decomposition of the remaining amount in ratio 1:3:6, e.g. 40(p) + 120(p) + 240 (=400(p)) A1 for 32.4(0)
24				2	M1 for correct intersecting arcs A1 for correct angle bisector

National performance data from Results Plus

	Original source of questions						Mean score of students achieving grade:					
Qn	Spec	Paper	Session YYMM	Question	Topic	Max score	ALL	C	D	E	F	G
1	5MM1	1F	1111	Q01b	Place value	2	1.83	1.77	1.64	1.63	1.36	1.83
2	1380	1F	0906	Q07	Extract data from lists and tables	3	2.51	2.80	2.69	2.49	2.17	1.78
3	1380	1F	1011	Q18	Properties of 3D shapes	2	1.62	1.86	1.72	1.56	1.36	1.11
4	1MA0	1F	1303	Q03	Fractions, percentages and decimals	4	2.97	3.70	3.26	2.68	2.21	1.93
5	1380	1F	1203	Q09	Simplify expressions	3	2.42	2.70	2.52	2.36	2.22	2.00
6	5MM1	1F	1206	Q11	Probability	2	1.46	1.80	1.78	1.56	1.39	0.99
7	5MM1	1F	1406	Q14	Pattern sequences	3	1.83	2.63	2.14	1.77	1.38	1.14
8	1MA0	1F	1211	Q10	Money calculations	4	2.87	3.50	3.22	2.89	2.46	1.86
9	1MA0	1F	1611	Q10	Integers	4	Data to be added in January 2017					
10	1MA0	1F	1611	Q12	Fractions	3	Data to be added in January 2017					
11	1MA0	1F	1306	Q09	Coordinates in 2D	3	1.92	2.42	2.15	1.96	1.76	1.50
12	5MM1	1F	1406	Q22	Fractions	3	0.85	2.23	1.16	0.51	0.09	0.04
13	1MA0	1H	1206	Q06	Ratio	4	3.05	2.91	2.07	1.30		
14	1MA0	1H	1411	Q11	Percentages - VAT	4	2.20	2.74	1.56	0.45		
15	1MA0	1F	1206	Q24	HCF and LCM	3	0.93	1.82	1.18	0.68	0.30	0.12
16	1MA0	1F	1611	Q13		5	Data to be added in January 2017					
17	1MA0	1H	1311	Q06	Translations and rotations	4	2.37	2.27	1.34	0.62		
18	1MA0	1H	1406	Q17	Standard form	4	2.51	2.18	1.46	0.94		
19	2540	1H	0811	Q21	Probability tree diagrams	4	2.37	2.02	1.61	1.32		
20	1380	1F	1011	Q21	Graphs of linear equations	3	0.59	1.45	0.48	0.12	0.05	0.03
21	1MA0	1H	1411	Q07	Perimeter and area	4	1.38	1.51	0.68	0.29		
22	5MM1	1H	1411	Q09	Solve linear equations	4	2.07	1.52	0.77	0.20		
23	1380	1F	1106	Q27	Ratio	3	0.27	0.75	0.29	0.10	0.03	0.02
24	2540	1F	0811	Q25	Constructions	2	0.15	0.36	0.12	0.05	0.02	0.01
						80						