

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
1.	(i)		11	2	B1 cao
	(ii)				B1 for an appropriate reason, e.g. subtract 3 or goes down by 3
2.	(a)(i)		(2, 4)	2	B1 cao
	(ii)		(-3, -1)		B1 cao
	(b)		× at (2, -1)	1	B1 for × at (2, -1)
3.	(a)(i)		56	2	B1 for 56
	(ii)		reason		B1 for <u>angles</u> on a straight <u>line</u> add up to <u>180</u> ° oe
	(b)		square or rectangle	1	B1 for square or rectangle
	(c)		kite drawn	1	B1 for kite drawn
4.	(a)		-21	1	B1 cao
	(b)		27	1	B1 cao
5.	(a)		5	1	B1 cao
	(b)		1:3	1	B1 cao

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0				
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6.		1.83 m or 183 cm	2	M1 for $178 + 5$ or $1.78 + 0.05$ or 183 or 1.83 A1 for 1.83 m or 183 cm (units must be correct)
7.	(a)	9	1	B1 cao
	(b)	33	2	M1 for 5×5 or 25 seen in the working or $2 \times 2 \times 2$ or 8 seen in the working A1 cao
8.	(a)	cross at 0	1	B1 cao
	(b)	cross at 1	1	B1 cao
	(c)	cross at 1/6	1	B1 for cross in guidelines (overlay)

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
9.	(a)		50	3	<p>M1 for $\frac{6}{8} \times 80$ oe (= 60) or $\frac{1}{8} \times 80$ oe (= 10)</p> <p>(may be seen on gauges, e.g. 10 by $\frac{1}{8}$ position or 60 by $\frac{6}{8}$ position on either gauge)</p> <p>M1 (dep) for a complete correct method e.g. “60” – “10” or 5×10”</p> <p>A1 for 50 (accept answers in the range 49 - 51)</p> <p>or</p> <p>M1 for $\frac{6}{8} - \frac{1}{8}$ (= $\frac{5}{8}$)</p> <p>M1 (dep) for “$\frac{5}{8}$” $\times 80$</p> <p>A1 for 50 (accept answers in the range 49 – 51)</p>
	(b)		12	2	<p>M1 for $180 \div 15$ oe</p> <p>A1 cao</p>

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0				
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10.	(a)	6	1	B1 cao
	(b)	44	1	B1 cao
	(c)	31	2	M1 for 60 – 29 or 29 – 60 or any correct method that is attempting to find the difference between 29 and 60 (allow 1 arithmetic error) A1 cao
11.	(a)	3	1	B1 cao
	(b)	5	1	B1 cao
	(c)	18	2	M1 for “30” – “12” seen with at least one correct A1 cao (SC : B1 for 25 and 12 seen with an answer of 13)

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

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12.	$540 - 240 = 300$ $\frac{15}{100} \times 300$ (or $10\% = 30$ $5\% = 15$ $30 + 15 = 45$)	45	3	M1 for $540 - 240$ or 300 seen M1 (dep) for $\frac{15}{100} \times '300'$ or correct method for $10\% + 5\%$ of '300' A1 cao
13.	(a)	8	1	B1 cao
	(b)	6.5 cm	4	M1 for $31 - 9 - 9 (=13)$ M1 for "13" $\div 2$ A1 for 6.5 oe C1 for units (cm) or M1 for $x + 9 + x + 9 = 31$ oe (do not accept cm in equation) M1 for 2 9 9 31 A1 for 6.5 oe C1 for units (cm)

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
14.	(a)		$\frac{2}{21}$	1	B1 for $\frac{2}{21}$
	(b)		$\frac{4}{15}$	2	M1 for attempting to use a suitable common denominator with at least one of the two fractions correct A1 for $\frac{4}{15}$ oe
15.	(a)		30	2	M1 for $25 \div 10$ or 2.5 seen or $10 \div 25$ or 0.4 seen or $12 + 12 + 6$ oe or a complete method e.g. $25 \times 12 \div 10$ oe A1 cao
	(b)	$1000 \div 200 \times 12$	60	2	M1 for $500 \div 50$ or $1000 \div 200$ or $500 \div 10$ 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 an answer of 120 or 600 A1 cao

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
16.		<p>“two angles are equal so the triangle is isosceles”</p>	5	<p>M1 for $6x - 10 + 4x + 8 + 5x + 2$ or $15x$</p> <p>M1 for $6x - 10 + 4x + 8 + 5x + 2 = 180$ or $15x = 180$ or</p> <p style="padding-left: 40px;">$(x =) 180 \div 15$</p> <p>A1 $x = 12$</p> <p>M1 (ft from '12' if M2 scored) for $5 \times '12' + 2$ or $6 \times '12' - 10$ or $62(^{\circ})$ or $4 \times '12' + 8$ or $56(^{\circ})$</p> <p>C1 both base angles as 62 and two angles are equal so the triangle is isosceles</p> <p>OR</p> <p>M1 $5x + 2 = 6x - 10$ or $2 + 10 = 6x - 5x$</p> <p>A1 $x = 12$</p> <p>M1 $5 \times 12 + 2$ or $6 \times 12 - 10$ or $62(^{\circ})$ or $4 \times 12 + 8$ or $56(^{\circ})$</p> <p>M1 checking their angles add to 180°, “62”+”62”+”56”=180</p> <p>C1 both base angles as 62 and two angles are equal so the triangle is isosceles</p>

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

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17.	$1 - (0.5 + 0.2)$ $0.3 \div 2$	0.15	3	M1 for $1 - (0.5 + 0.2)$ or 0.3 oe seen M1 for $(1 - (0.5 + 0.2)) \div 2$ A1 for 0.15 oe

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
18.	$1.18 \div 4 = 0.295$ $(118 \div 4 = 29.5)$ $1.74 \div 6 = 0.29$ $(174 \div 6 = 29)$ $1.18 \div 2 = 0.59$ $1.74 \div 3 = 0.58$ $1.74 \times 4 = 6.96$ $1.18 \times 6 = 7.08$ $1.74 \times 2 = 3.48$ $1.18 \times 3 = 3.54$ $1.18 \div 2 \times 3 = 1.77$ $1.74 \div 3 \times 2 = 1.16$ $4 \div 1.18 = 3.3(\dots)$ $6 \div 1.74 = 3.4(\dots)$	6 pints	3	<p>M1 for division of price by quantity for both bottles or division of quantity by price for both bottles or complete method to find price of same quantity of milk</p> <p>A1 for two correct values that could be used for a comparison</p> <p>C1 ft (dep on M1) for comparison of their values with a correct conclusion.</p>

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
19.		240	4	M1 for 16×2 (= 32 girls) M1 for $16 + '16 \times 2'$ (= 48) M1 (dep on the previous M1) for $(16 + '32') \times 5$ or $(16 + '32') \times (4 + 1)$ A1 cao OR M1 for $1 : 2 = 3$ parts M1 for $5 \text{ schools} \times 3 \text{ parts}$ (= 15 parts) M1 (dep on the previous M1) for $'15' \text{ parts} \times 16$ A1 cao

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
20.	(a)	$12 = 2 \times 2 \times 3$ $20 = 2 \times 2 \times 5$ OR 12: 1, 2, 3, 4, 6, 12 20: 1, 2, 4, 5, 10, 20	4	2	M1 for dealing with both 12 and 20 by, Writing each number as a product of prime factors (condone one error only); or by, Listing the factors of each number (condone one error only), or by, Drawing a Venn Diagram (or two factor trees) showing all prime factors of each number (condone one error only) A1 for HCF = 4 (accept 2×2 or 2^2)
	(b)	$32 = 2 \times 2 \times 2 \times 2 \times 2$ $48 = 2 \times 2 \times 2 \times 2 \times 3$ OR 32. 64, 96, 128, ... 48, 96, 144,	96	2	M1 for dealing with both 32 and 48 by, Writing each number as a product of prime factors (condone one error only); or by, Listing the multiples of each number , up to at least 96 in each list (condone one error only), or by, Drawing a Venn Diagram (or two factor trees) showing all prime factors of each number (condone one error only) A1 for LCM = 96 (accept $2^5 \times 3$ or $2 \times 2 \times 2 \times 2 \times 2 \times 3$) [SC: B1 for any multiple of both 32 and 48 (e.g. 192) if M0 scored]

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0				
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21.		32.5	3	M1 for $45 \div 30 (= 1.5)$ or 1hr 30 min seen or for $20 \div 40 (=0.5$ or 30min) M1 (dep) for $(45 + 20) \div (“1.5” + “0.5”)$ A1 cao
22.	(a)	$(x + 7)(x - 7)$	1	B1 cao
	(b)	$2y^2 - 6y + 7y - 21$	2	M1 for 3 out of no more than 4 terms correct with correct signs or the 4 terms $2y^2$, $6y$, $7y$ and 21 seen, ignoring signs A1 cao
23.	(a)	$(6 \times 10^8) \times (4 \times 10^7) =$ $24 \times 10^{8+7}$ 24×10^{15}	2	M1 $24 \times 10^{8+7}$ or 24 000 000 000 000 000 or 2.4×10^n A1 cao
	(b)	$(6 \times 10^8) + (4 \times 10^7)$ $= 6 \times 10^8 + 0.4 \times 10^8$	2	M1 $6 \times 10^8 + 0.4 \times 10^8$ or $60 \times 10^7 + 4 \times 10^7$ or 600 000 000 + 40 000 000 or 640 000 000 oe or 6.4×10^n A1 cao

1MA1 Practice papers Set 5: Paper 1F (Regular) mark scheme – Version 1.0

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24.	$150 \div 6$ or $\frac{1}{6} \times 150$	25	2	M1 $150 \div 6$ or $\frac{1}{6} \times 150$ A1 cao NB $\frac{25}{150}$ scores M1 A0

National performance data from Results Plus

Qn	Original source of questions					Max score	Mean score of students achieving grade:					
	Spec	Paper	Session YYMM	Question	Topic		ALL	C	D	E	F	G
1	5MM1	1F	1406	Q03	Number sequences	2	1.82	1.90	1.89	1.87	1.82	1.63
2	5MM1	1F	1411	Q04	Coordinates in 2D	3	2.79	2.88	2.87	2.82	2.75	2.66
3	1MA0	1F	1511	Q04	Angles	4	3.23	3.59	3.39	3.09	2.53	2.03
4	5MB2	2F	1406	Q07bc	Arithmetic	2	1.58	1.91	1.79	1.64	1.38	1.04
5	5MB2	2F	1406	Q07ef	Number, ratio	2	1.31	1.89	1.65	1.33	0.92	0.51
6	1MA0	1F	1306	Q07	Decimals	2	1.11	1.62	1.33	1.08	0.90	0.75
7	1MA0	1F	1206	Q11	Index laws	3	1.26	2.08	1.61	1.12	0.63	0.30
8	1380	1F	1106	Q13	Probability scales	3	1.33	1.94	1.54	1.22	0.86	0.57
9	1MA0	1F	1306	Q12	Reading scales	5	2.83	4.35	3.74	3.02	2.13	1.17
10	1MA0	1F	1206	Q20	Stem-and-leaf diagrams	4	2.13	3.35	2.81	2.01	1.05	0.42
11	1MA0	1F	1306	Q22	Distance-time / travel graphs	4	3.03	3.74	3.56	3.32	2.86	2.01
12	1380	1F	1011	Q20	Percentages	3	1.73	2.57	2.11	1.27	0.60	0.39
13	5MM1	1F	1311	Q23	Derive expressions	5	2.51	4.05	3.70	2.00	1.38	0.48
14	1MA0	1H	1406	Q01	Fractions	3	1.84	1.46	0.84	0.56		
15	1MA0	1F	1206	Q23	Ratio	4	1.67	2.79	2.05	1.48	0.86	0.40
16	5MM1	1F	1306	Q28	Solve linear equations	5	0.61	2.33	0.68	0.16	0.03	0.00
17	5MM1	1H	1211	Q02	Probability	3	2.60	2.43	1.73	0.00		
18	1MA0	1H	1406	Q10	Ratio	3	2.05	1.89	1.19	0.50		
19	1MA0	1F	1303	Q23	Ratio	4	1.60	2.94	1.81	0.87	0.34	0.20
20	5MM1	1H	1106	Q07	HCF and LCM	4	2.90	2.25	1.47	1.00		
21	5MB2	2H	1306	Q11	Speed	3	0.98	0.72	0.35	0.16		
22	5MB2	2H	1511	Q08de	Expanding brackets	3	1.28	1.35	1.03	0.27		
23	1380	1H	1111	Q13	Standard form	4	1.25	0.90	0.34	0.19		
24	5MM1	1H	1306	Q06	Relative frequency	2	1.34	1.07	0.78	0.35	0.11	0.67
						80	44.78	56.00	44.26	31.33		