1MA1 Practice papers Set 2: Paper 2F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
1.			$\frac{13}{1000}$	1	B1 cao
2.			64	1	B1 cao
3.			8	1	B1 cao
4.			2401	1	B1 cao
5.	(a)		8, 10	1	B1 cao
	(b)		24	1	B1 cao
	(c)		reason	1	B1 for a valid reason that demonstrates the understanding that the number of triangles is twice the pattern number
6.		3.80 × (23 + 21) = 87.4 + 79.8 = 167.20 5.99 × (28 + 27) = 167.72 + 161.73 = 329.45 7.14 × (19 + 32) = 135.66 + 228.48 = 364.14 860.79 5.99 × (23 + 21 + 28 + 27 + 19 + 32) = 898.50	No, Parcel Express is cheaper	5	M1 for a correct method to find cost of Parcel Express for either month or for the two months for one of the weight ranges M1 for method to find cost of Parcels R Go for either one month or for two months A1 for 860.79 A1 for 898.5(0) C1 (dep on M2) for a correct conclusion from their comparable calculations; units must be included

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Question		**Working**	**Answer**	**Mark**	**Notes**
7.			Accurate drawing	2	M1 for one angle of triangle drawn as 50º A1 for accurate drawing
8.	(i) (ii) (iii)		Label A at 1 Label B at 1 cm to 2.5 cm from 0 Label C at 0.5	1 1 1	B1 B1 B1
9.			30	2	M1 for finding the middle value or indication of 0, 29, 29.5, 30.5, 31, 31.5, 32 or writing "10th value" (or equivalent) A1 cao
10.	(b) (b)	 1200 ÷ 8 × 12	23 1800	3	B1 M1 1200 ÷ 8 × 12 (or equivalent) A1

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Question		**Working**	**Answer**	**Mark**	**Notes**
11.	(a)	RB, RG, RY, RP BG, BY, BP GY, GP YP (RR, BB, GG, YY, PP)	Correct 10 outcomes	2	B2 for all 10 correct outcomes with no incorrect pairs or repeats or additional reversed pairs condone replacement (B1 for at least 6 pairs ignoring any incorrect pairs, repeats or additional reversed pairs)
	(b)		$\frac{1}{10}$	1	B1 for $\frac{1}{10}$ or ft from their incorrect number of outcomes from part (a)

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Question		**Working**	**Answer**	**Mark**	**Notes**
12.	(a)	(79 + 39) × 1.2 118 × 1.2 **OR** 79 × 1.2 + 39 × 1.2 94.80 + 46.80 **OR** $\frac{20}{100}$ × (79 + 39) = 23.60 118 + 23.60 **OR** $\frac{20}{100}$ × 79 = 15.80 $\frac{20}{100}$ × 39 = 7.80 15.80 + 7.80 + 118	141.60	3	M1 for 79 × 1.2 or 39 × 1.2 (or equivalent) M1 for 79 × 1.2 + 39 × 1.2 (or equivalent) A1 for 141.6(0) **OR** M1 for $\frac{20}{100}$ × 79 (= 15.8) and $\frac{20}{100}$ × 39 (= 7.8) M1 for $\frac{20}{100}$ × 79 + 79 + $\frac{20}{100}$ × 39 + 39 A1 for 141.6(0) **OR** M1 for $\frac{20}{100}$ × (79 + 39) (= 23.6) (or equivalent) M1 for $\frac{20}{100}$ × (79 + 39) + 79 + 39 (or equivalent) A1 for 141.6(0)
	(b)	20 000 × 0.8 = 16 000 16 000 × 0.9 = 14 400 **OR** $\frac{20}{100}$ × 20 000 = 4000 20 000 – 4000 = 16 000 10% × 16 000 = 1600 16 000 – 1600 =	14 400	3	M1 for 20 000 × 0.8 (or equivalent) or 16 000 seen M1 for '16 000' × 0.9 (or equivalent) A1 for 14 400 **OR** M1 for 20 000 – 0.2 × 20 000 (or equivalent) or 16 000 seen M1 for '16 000' – 0.1 × '16 000' (or equivalent) A1 for 14 400

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Question		**Working**	**Answer**	**Mark**	**Notes**
13.			Correct elevation	2	B2 for sketch of trapezium (B1 for trapezium with a rectangle or a parallelogram added at top or side or lines drawn from vertices)
14.	(a) (b)		$2 \times 2 = 4$ explanation	1 2	B1 C2 Complete explanation e.g. negative × negative = positive then negative × positive = negative (C1 Start to explanation eg. negative × negative = positive)
15.			6 : 3 : 1	2	M1 Writes down any one ratio correctly, e.g. 2:1 or 3: 1 A1
16.			explanation	1	C1, e.g. both fractions are bigger than ½ so answer should be greater than 1 but answer is less than 1

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Question		**Working**	**Answer**	**Mark**	**Notes**
17.			148°	4	M1 for (angle *BDC* =) 360 – 250 (=110) M1 (dep) for 180 – (180 – '110' – 38) (= 148) or for '110' + 38 (= 148) C2 (dep on M2) for $x = 148$ with full reasons, relevant to the complete correct method used, for example: Angles at a point add up to 360° **and** angles in a triangle add up to 180° **and** angles on a straight line add up to 180°; Or Angles at a point add up to 360° **and** exterior angle of a triangle is equal to the sum of the interior opposite angles or (C1 (dep on at least M1) for one reason relevant to correct method)

<table>
<tr><th colspan="5">1MA1 Practice papers Set 2: Paper 2F (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>18.</td><td></td><td><table><tr><td>–2</td><td>–1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>–7</td><td>–5</td><td>–3</td><td>–1</td><td>1</td><td>3</td></tr></table></td><td>Straight line from (–2, –7) to (3, 3)</td><td>4</td><td>(Table of values)
C1 for axes scaled and labelled
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 plotted correctly)
A1 for correct line between $x = -2$ and $x = 3$
(No table of values)
C1 for axes scaled and labelled
M1 for at least 2 correct points with no more than 2 incorrect points
M1 for at least 2 correct points (and no incorrect points) plotted
OR line segment of $y = 2x - 3$ drawn
A1 for correct line between $x = -2$ and $x = 3$
(Use of $y = mx + c$)
C1 for axes scaled and labelled
M1 for line drawn with gradient of 2 OR line drawn with a y intercept of –3
M1 for line drawn with gradient 2 and with a y intercept of –3
A1 for correct line between $x = -2$ and $x = 3$</td></tr>
</table>

1MA1 Practice papers Set 2: Paper 2F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
19.		19.5 × 1000 ÷ 210 = 19500 ÷ 210 = 92.8(5714…) or 92 × 210 = 19320 = 19.32 *l* 93 × 210 = 19530 = 19.53 *l* or 19500 ÷ 92 = 211.95 19500 ÷ 93 = 209.67	explanation	3	M1 for converting between m*l* and *l* correctly or for 0.21 or 19500 seen M1 for "19500" ÷ "210" or 92 × "210" or 93 × "210" or "19500" ÷ 92 A1 for a worded explanation with correct calculations
20.		*a* = cost(p) of an apple *p* = cost(p) of a pear 3*a* + 4*p* = 184 5*a* + 2*p* = 176 7*a* = 2 × 176 - 184 = 168	24, 28	4	B1 3*a* + 4*p* = 184 and 5*a* + 2*p* = 176 (or equivalent) M1 correct process to eliminate *a* or *p* M1(dep on M1): substitute found value of *a* or *p* to find other variable A1 cao

1MA1 Practice papers Set 2: Paper 2F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
21.		$\frac{3}{4} \times 120 = 90$, $\frac{1}{4} \times 120 = 30$ $\frac{2}{3} \times 90 = 60$, $\frac{20}{100} \times 30 = 6$ 60 : 6	10 : 1	5	M1 for $\frac{3}{4} \times 120$ (or equivalent) or 90 or $\frac{1}{4} \times 120$ (or equivalent) or 30 M2 (indep) for $(1 - \frac{1}{3}) \times$ '90' (or equivalent) (or 60) AND $\frac{100-80}{100 \times 30}$ (or equivalent) (or 6) (M1 (indep) for $(1 - \frac{1}{3}) \times$ '90' (or equivalent) or 60 OR $\frac{100-80}{100 \times 30}$ (or equivalent) or 6 OR both $\frac{1}{3} \times 90$ (= 30) and $\frac{80}{100} \times 30$ (= 24) M1 (dep on at least M2) for '60' : '6' or 1 to 10 or 6 to 60 (or equivalent) or reversed ratio 6:60 A1 10:1 cao

<table>
<tr><th colspan="6">1MA1 Practice papers Set 2: Paper 2F (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>22.</td><td>(a)</td><td></td><td>17.50</td><td>1</td><td>B1 for 17.5(0)</td></tr>
<tr><td></td><td>(b)</td><td></td><td>1.25</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(c)</td><td><table><tr><th>Days</th><th>SaU</th><th>StY</th></tr><tr><td>3</td><td>13.75</td><td>9</td></tr><tr><td>4</td><td>15.00</td><td>12</td></tr><tr><td>5</td><td>16.25</td><td>15</td></tr><tr><td>6</td><td>17.50</td><td>18</td></tr><tr><td>7</td><td>18.75</td><td>21</td></tr></table></td><td>Comparison made</td><td>3</td><td>M1 for drawing line for Saws to You (StY) through the origin or for line with gradient 3

C2 for a correct line and making a statement of which is cheaper up to 5 days and which is cheaper for 6 days or more

(C1 (depM1) for making any correct comparison from their graphs)

Or

M1 for any three correct costs for Saws to You

C2 for correct figures for 5 days and 6 days for both companies and making a statement of which is cheaper up to 5 days and which is cheaper for 6 days or more

(C1 (depM1) for making any correct comparison from their calculations for the two companies)</td></tr>
<tr><td>23.</td><td></td><td>$8.4^2 + 8.4^2$

$\sqrt{70.56+70.56} = \sqrt{141.12}$</td><td>11.9 cm</td><td>3</td><td>M1 $8.4^2 + 8.4^2$ (or equivalent)

M1 $\sqrt{70.56+70.56}$ or $\sqrt{141.12}$

A1 11.85 – 11.9</td></tr>
</table>

1MA1 Practice papers Set 2: Paper 2F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
24.		$\pi(6)^2 - \pi(5)^2$ $= 113(.0973\ldots) -$ $78.5(398\ldots)$ $=34.55751919$	34.6	3	M1 for $\pi(6)^2$ (or equivalent) or $\pi(5)^2$ (or equivalent) or 113… or 78.5… M1 for $\pi(6)^2 - \pi(5)^2$ (or equivalent) A1 for 34.5 – 34.6
25.		$\tan x = 14 \div 7.5$ $= 1.86666\ldots$ $\tan^{-1} 1.8666\ldots$	62	3	M1 for $\tan x = 14 \div 7.5$ (= 1.86666…) M1 for $\tan^{-1}(14 \div 7.5)$ A1 for answer in the range 61.7 to 62
26.			4.2	3	M1 $1500 \div (100 \times 100)$ (=0.15) M1 $28 \times$ "0.15" A1
27.	(a)		0.7, 0.3 0.9, 0.1, 0.9, 0.1	2	B1 for 0.7, 0.3 in correct position B1 for 0.9, 0.1, 0.9, 0.1 in correct position
	(b)		0.63	2	M1 0.7×0.9 ft from tree diagram A1

National performance data from Results Plus

Qu No	Spec	Paper	Session	Qu	Topic	Max score	Mean % all	ALL	C	D	E	F	G
1				NEW	Fractions and decimals	1		No data available					
2				NEW	Conversions	1		No data available					
3				NEW	Faces, edges, vertices	1		No data available					
4				NEW	Index notation	1		No data available					
5	1MA0	2F	1303	Q02	Pattern sequences	3	86	2.58	2.88	2.75	2.60	2.36	1.92
6	5AM2	2F	1306	Q13	Money calculations	5	67	3.36	4.57	3.93	2.63	1.65	0.61
7	5AM2	2F	1506	Q07	Constructions	2	58	1.15	1.71	1.29	0.88	0.62	0.25
8	4MA0	2F	1305	Q03	Probability	3	67	2.02	2.45	2.08	1.73	1.18	0.95
9	2540	2F	0811	Q21	Stem-and-leaf diagrams	2	54	1.08	1.62	1.26	0.70	0.27	0.15
10	4MA0(R)	2F	1501	Q15	Percentages	3	70	2.09	2.33	2.00	1.50	0.50	
11	5AM2	2F	1506	Q10	Sample space diagrams	3	62	1.87	2.33	2.13	1.75	1.36	0.77
12	5AM1	1F	1211	Q21	Percentages - VAT	6	40	2.42	4.61	3.10	1.80	0.23	0.16
13	1380	2F	0911	Q23b	Plans and elevations	2	70	1.39	1.72	1.48	1.25	1.05	0.75
14				NEW	Algebraic proof	3		No data available					
15				NEW	Probability	2		No data available					
16				NEW	Fractions	1		No data available					
17	1MA0	2F	1411	Q15	Angles	4	38	1.50	2.60	1.87	1.07	0.40	0.10
18	1MA0	2H	1411	Q12	Graphs of linear equations	4	47	1.88	2.39	1.24	0.27		
19	1380	2H	1011	Q18	Compound measures	3	62	1.85	1.67	0.96	0.50		
20	5AM1	1H	1406	Q11	Simultaneous equations	4	71	2.83	1.94	0.67	0.13		
21	5MM2	2H	1111	Q06	Ratio	5	60	3.02	2.15	1.26	1.33		
22	5AM1	1F	1411	Q23	Conversion graphs	5	22	1.10	1.95	1.26	0.67	0.80	0.29
23	5MM2	2F	1206	Q27	Pythagoras in 2D	3	11	0.34	1.21	0.34	0.08	0.01	0.03
24	1380	2H	1106	Q05	Area of a circle	3	59	1.78	0.92	0.24	0.07		
25	5MM2	2H	1306	Q15	Trigonometry	3	56	1.68	1.02	0.42	0.13		
26				NEW	Compound measures	3		No data available					
27a	2MB01	1H	1411	Q08	Probability trees	2	67	1.33	2.00	1.75	1.48	1.22	1.33
27b	2MB01			NEW	Probability	2		No data available					
						80							