1MA1 Practice Tests Set 1: Paper 2H (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
1			488	3	M1 600 × 67.1 (= 40260) or 67.1 ÷ 82.5 (= 0.813…) M1 (dep) "40260" ÷ 82.5 or "0.813.." × 600 A1 cao SC: B2 for 712
2		12, 24, 36, 48, 60, 72, …. 8, 16, 24, 32, 40, 48, 56, 64, 72,…	25.80	5	M1 for listing at least 3 multiples of each of 12 and 8 or 24 in two lists of multiples or from factor trees M1 (dep) for attempt to find a common multiple of 12 and 8 above 60 (= 72) M1 (dep M2) for method to find the number of boxes **and** the number of packs 72 ÷12 (= 6) and 72 ÷ 8 (= 9) M1 for finding the total cost by multiplying numbers by cost and adding eg "6" × 2.50 + "9" × 1.20 A1 for 25.8(0)
3		62 + 92 = 117 √117 =	10.8	3	M1 for 62 + 92 M1 for √(36 + 81) or √117 A1 for 10.8 – 10.82
4	(a)		Negative	1	B1 cao
	(b)		117–123	2	M1 for a line of best fit drawn between (9,130) and (9, 140) and between (13,100) and (13,110) inclusive A1 for 117 – 123
5		$x + 4x > 2(x + 48)$ $5x > 2x + 96$ $3x > 96$	33	5	B1 for $x + 48$ (or $2x + 96$ oe) **and** $4x$ M1 for $x + 4x > 2(x + 48)$ oe M1 for subtracting $2x$ from both sides

<table>
<tr><th colspan="5">1MA1 Practice Tests Set 1: Paper 2H (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></td><td></td><td>$x > 32$

OR

<table>
<tr><th>S</th><th>N</th><th>C</th><th>S+C</th><th>2N</th></tr>
<tr><td>10</td><td>58</td><td>40</td><td>50</td><td>116</td></tr>
<tr><td>20</td><td>68</td><td>80</td><td>100</td><td>136</td></tr>
<tr><td>30</td><td>78</td><td>120</td><td>140</td><td>156</td></tr>
<tr><td>32</td><td>80</td><td>128</td><td>160</td><td>160</td></tr>
<tr><td>33</td><td>81</td><td>132</td><td>165</td><td>162</td></tr>
</table></td><td></td><td></td><td>A1 for $3x > 96$ oe
A1 cao for 33

OR
Trial and Improvement
B1 for 1 correct trial of S, N and C
M1 for an improved correct trial of S, N and C
M1 for a correct trial of 32
M1 for a correct trial of 33
A1 (dep on M2) for 33 cao
NB: Accept other letters instead of x
NB: an answer of 32 without working scores 0 marks</td></tr>
<tr><td>6</td><td></td><td>$4x + 4x + 3x + 4 + 3x + 4 = 14x + 8$
$5x + 5x + x – 3 + 7x – 3 = 18x – 6$
$18x – 6 = 14x + 8$
$4x = 14$
$x = 14/4 = 3.5$ oe</td><td>$x = 3.5$
L = 14.5
W = 14</td><td>6</td><td>M1 $4x + 4x + 3x + 4 + 3x + 4$ $(= 14x + 8)$
M1 $5x + 5x + x – 3 + 7x – 3$ $(= 18x – 6)$
M1 equating e.g. $18x – 6 = 14x + 8$ $(4x = 14)$
A1 $x = 14/4 = 3.5$ oe
A1 for 14.5 or “3.5” × 3+4 ft
A1 for 14 or “3.5” × 4 ft</td></tr>
</table>

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Question		**Working**	**Answer**	**Mark**	**Notes**
		Area of trapezium = Length is $3x + 4$ = $3 \times 3.5 + 4$ = Width is $4x = 4 \times 3.5$ =			
7	(a)		0.22,0.78,0.74,0.26	2	B1 for 0.78,0.22 correctly placed B1 for 0.26,0.74 correctly placed
	*(b)		No As $0.454 < 0.5$	4	M1 for $0.55 \times$ "0.22" or $0.45 \times$ "0.74" oe M1 for $0.55 \times$ "0.22" + $0.45 \times$ "0.74" oe A1 for 0.454 oe C1 (dep on M1) for conclusive statement based on their answer compared to 50%
8		$2y - -y = 3 - 6$ or $x + 2x = 3 + 12$	$x = 5, y = -1$	3	M1 for a complete method to eliminate one variable (condone one arithmetic error) A1 $x = 5$ A1 $y = -1$ NB: Candidates showing no working score 0 marks

1MA1 Practice Tests Set 1: Paper 2H (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
9			28% or $\frac{14}{50}$	4	M1 for 100 – 30 (= 70) or $1-\frac{3}{10}\left(=\frac{7}{10}\right)$ M1 for "70" ÷ (3 + 2) (= 14) or $\frac{7}{10}\div(3+2)\left(=\frac{7}{50}\right)$ M1 for "14" × 2 or $\frac{7}{50}\times 2$ A1 for 28% or $\frac{14}{50}$ oe OR M1 for a correct method to find (100 – 30)% of any actual sum of money M1 for "350" ÷ (3 + 2) (= 70) M1 for "70" × 2 A1 for 28% or $\frac{14}{50}$ oe OR M1 for starting with two numbers in ratio 3:2, e.g. 21 and 14 M1 for equating sum of their numbers to 100 – 30 (= 70%), e.g. '21' + '14' (= 35) M1 for scaling sum of their numbers to 100%, e.g. '35' ÷ 70 × 100 (= 50)

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Question		**Working**	**Answer**	**Mark**	**Notes**
					A1 for 28% or $\frac{14}{50}$ oe SC: award B3 for oe answers expressed in an incorrect form e.g. $\frac{2.8}{10}$
10		5, 13, 29, 53, 85, 125	(85)	2	M1 for correct evaluation of at least 3 odd cases or sequence of 5, (8), 13, (20), 29… seen or the expression with n = 9 or 11 or 19 or 21 or … substituted but not evaluated A1 for 85 or 125 or 365 or 445 or … identified
11	(a)		104.5°	3	M1 for substitution into the cosine rule e.g. $3.6^2 = 1.8^2 + 2.7^2 - 2 \times 1.8 \times 2.7 \times \cos A$ M1 for $\cos A = \left(\frac{1.8^2 + 2.7^2 - 3.6^2}{2 \times 1.8 \times 2.7}\right)$ $\left[= \left(\frac{3.24 + 7.29 - 12.96}{9.72}\right) = (-0.25)\right]$ A1 for 104.47.....
	(b)		2.4	2	M1 (ft) for $\frac{1}{2} \times 1.8 \times 2.7 \times \sin$ (a) A1 for an answer in the range 2.3 to 2.4 or ft from their (a) if supported by correct working.

1MA1 Practice Tests Set 1: Paper 2H (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
***12**		*d*: UB = 190.5 (190.49..) LB = 189.5 *f*: UB = 25.75 (25.749..) LB = 25.65	7.4 because the LB and UB agree to that number of figures	5	B1 for one correct bound of *d* B1 for one correct bound of *f* M1 for a correct method to find the upper bound of *c*, e.g. "190.5" ÷ "25.65" (= 7.4269....) or for a correct method to find the lower bound of *c*, e.g. "189.5" ÷ "25.75" (= 7.359....) A1 for 7.42(69…) and 7.35(92…) C1 (dep on M1) for a statement that both LB and UB round to "7.4" to one decimal place oe **NB** an answer of 7.39(2996…) or 7.4 without working or from 190 ÷ 25.7 scores no marks
13		Volume of A = $\frac{140}{0.7}$ = 200 Volume of B = $\frac{128}{1.6}$ = 80 Mass of C = 140 + 128 = 268 Density of C = $\frac{268}{280}$	0.957	4	M1 for finding the volume of either liquid A or B or the mass of liquid C M1 for a complete method to find the volume AND mass of liquid C M1 (dep M2) for "total mass" ÷ " total volume" A1 for 0.957 to 0.96

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Question		**Working**	**Answer**	**Mark**	**Notes**
14	(a)		11	1	B1 cao
	(b)	$y = 2x + 5$ $y - 5 = 2x$ OR $x = 2y + 5$ $x - 5 = 2y$	$\frac{x-5}{2}$	2	M1 for a correct first stage: subtract 5 from both sides or divide all terms by 2 NB Accept f(x) in place of y A1 $\frac{x-5}{2}$ (oe)
	(c)		– 16	1	B1 cao
	(d) (i)	$(2x+5)^2 - 25$ $4x^2 + 10x + 10x + 25$ oe	$4x^2 + 20x$	5	M1 B1 for correct expansion of $(2x + 5)^2$ A1 $4x^2 + 20x$ or a correct fully or partially factorised expression
	(ii)		x = 0, x = – 5		M1 $4x(x + 5) (= 0)$ or $x(4x + 20) (= 0)$ or $2x(2x + 10) (= 0)$ or $x(x + 5) (=0)$ or for, e.g. $\frac{-20 \pm \sqrt{20^2 - 4 \times 4 \times 0}}{2 \times 4}$ A1 for both solutions

1MA1 Practice Tests Set 1: Paper 2H (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
15		$\frac{5}{20}\times\frac{7}{19}+\frac{5}{20}\times\frac{8}{19}+$ $\frac{7}{20}\times\frac{5}{19}+\frac{7}{20}\times\frac{8}{19}+$ $\frac{8}{20}\times\frac{5}{19}+\frac{8}{20}\times\frac{7}{19}$ OR $\left(\frac{5}{20}\times\frac{15}{19}+\frac{7}{20}\times\frac{13}{19}+\frac{8}{20}\times\frac{12}{19}\right)$ OR 1 – $\left(\frac{5}{20}\times\frac{4}{19}+\frac{7}{20}\times\frac{6}{19}+\frac{8}{20}\times\frac{7}{19}\right)$		4	M1 for at least one product of the form $\frac{a}{20}\times\frac{b}{19}$ M1 for identifying all products (condone 2 errors in 6 products, 1 error in 3 products) Either $\frac{5}{20}\times\frac{7}{19},\frac{5}{20}\times\frac{8}{19},\frac{7}{20}\times\frac{5}{19},\frac{7}{20}\times\frac{8}{19},\frac{8}{20}\times\frac{5}{19},\frac{8}{20}\times\frac{7}{19}$ OR $\left(\frac{5}{20}\times\frac{15}{19},\frac{7}{20}\times\frac{13}{19},\frac{8}{20}\times\frac{12}{19}\right)$ OR $\left(\frac{5}{20}\times\frac{4}{19},\frac{7}{20}\times\frac{6}{19},\frac{8}{20}\times\frac{7}{19}\right)$ M1 (dep) for $'\frac{5}{20}\times\frac{7}{19}+\frac{5}{20}\times\frac{8}{19}+\frac{7}{20}\times\frac{5}{19}+\frac{7}{20}\times\frac{8}{19}+\frac{8}{20}\times\frac{5}{19}+\frac{8}{20}\times\frac{7}{19}'$ oe OR $\left('\frac{5}{20}\times\frac{15}{19}+\frac{7}{20}\times\frac{13}{19}+\frac{8}{20}\times\frac{12}{19}'\right)$ oe OR $1-\left('\frac{5}{20}\times\frac{4}{19}+\frac{7}{20}\times\frac{6}{19}+\frac{8}{20}\times\frac{7}{19}'\right)$ oe A1 for $\frac{131}{190}$ oe or 0.68947… correct to at least 2 decimal

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Question		**Working**	**Answer**	**Mark**	**Notes**
					places or answer that rounds to 0.69 NB : If decimals used for products then must be correct to at least 2 decimal places **With replacement** M0 M1 for identifying all products (condone 2 errors in 6 products, 1 error in 3 products) M1 (dep) A0 for $\frac{269}{400}$ oe or 0.655 (NB: $\frac{269}{400}$ oe or 0.655 implies M2) **Partial replacement** SC: B2 for $\frac{141}{200}$ oe or 0.705 or $\frac{121}{190}$ oe or 0.6368… correct to at least 2 decimal places
16		$P = k/x^2$ $6 = k/5^2$ (k = 150) $P = \frac{150}{8^2}$	2.34	3	M1 for $P = k/x^2$ or $P \propto k/x^2$ M1 for $6 = k/5^2$ or (k =) 150 seen or $6 \times 5^2 = P \times 8^2$ A1 2.34
17		$3^2 \times 180$	1620	2	M1 for using a scale factor of 3^2 (= 9) A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
18		e.g. $1 \times 7.6 + 3 \times 9.4 + 2 \times 5.6 + 6 \times 1.4 = 55.4$ $55.4 \div 2 = 27.7$ $27.7 - 7.6 = 20.1$ $20.1 \div 9.4 = 2.138\ldots$ Median $= 55 + 2.138\ldots \times 2.5 = 60.345\ldots$	60.3	4	M1 for attempt to find the area of one bar M1 for attempt to find total area ÷ 2 (condone one error) M1 for correct attempt to locate median in second bar (condone one arithmetic error) A1 for 60.3(4...)
19			(–15, 0)	4	M1 method to find gradient of tangent, e.g. $-1 \div -\frac{6}{3}$ $(=\frac{1}{2})$ M1 for method to find equation of tangent with $m =$ "$\frac{1}{2}$" M1 for method to find x-axis intercept of tangent A1 cao

National performance data from Results Plus

	Source of questions							Mean score of students achieving grade:					
Qu	Spec	Paper	Session	Qu	Topic	Max score	Mean % all	ALL	A*	A	B	C	D	E
1	4MA0(R)	2F	1501	Q17	Proportions	2.30	3	77				2.67	2.08	1.33
2	1MA0	2H	1406	Q14	HCF and LCM	3.68	5	74	4.65	4.27	3.97	3.58	2.77	1.58
3	5MM2	2F	1211	Q26	Pythagoras in 2D	1.00	3	33				2.90	1.88	0.52
4	1380	2F	911	Q27	Scatter diagrams	1.66	3	55				2.47	1.86	1.21
5	5AM2	2H	1306	Q14	Solve inequalities	2.71	5	54	4.43	3.48	2.78	1.72	0.79	0.06
6	5AM1	1H	1106	Q14	Solve linear equations	3.24	6	54	5.84	5.19	3.02	1.17	1.00	1.00
7	5AM2	2H	1411	Q15	Probability tree diagrams	3.22	6	54	5.78	5.25	4.29	2.36	1.00	0.00
8	4MA0(R)	2F	1501	Q20	Solving simultaneous equations	0.72	3	24				0.94	0.62	0.00
9	1MA0	2H	1306	Q07	Ratio	1.58	4	40	3.75	3.07	2.08	1.01	0.33	0.09
10	2540	2H	811	Q05	Number sequences	0.74	2	37	1.81	1.56	1.05	0.45	0.12	0.09
11	5MM2	2H	1506	Q21	Sine and cosine rule	1.59	5	32	4.38	2.58	0.80	0.16	0.05	0.10
12	5AM2	2H	1406	Q18	Bounds	1.57	5	31	3.53	2.65	1.45	0.44	0.10	0.00
13	1MA0	2H	1506	Q16	Compound measures	0.86	4	22	2.54	1.44	0.82	0.55	0.40	0.28
14	4MA0	1H	1401	Q20	Functions	4.76	9	53	7.89	5.68	3.42	1.41	0.47	0.25
15	1380	2H	906	Q26	Conditional probability	0.84	4	21	3.06	1.75	0.41	0.04	0.00	0.00
16	5MM2	2H	1111	Q23	Direct and indirect proportion	0.60	3	20	2.72	1.37	0.25	0.07	0.00	0.00
17	1MA0	2H	1506	Q21	Ratio	0.21	2	11	0.93	0.47	0.21	0.06	0.01	0.00
18	5AM1	1H	1311	Q21	Histograms and grouped data	0.42	4	11	2.04	0.67	0.23	0.12	0.00	0.00
19				NEW			4				No data available			
							80							