1MA1 Practice Tests Set 1: Paper 3F (Regular) mark scheme – Version 1.0					
Question		**Working**	**Answer**	**Mark**	**Notes**
1			18 000	1	B1 cao
2			$\frac{19}{1000}$	1	B1 cao
3			0.35	1	B1 cao
4			drawn	1	B1 for isosceles triangle drawn
5	(i) (ii) (iii) (iv)		5 or 7 4 6 2 or 5	4	B1 5 or 7 B1 cao B1 cao B1 2 or 5
6	(i)	17 55 + 1 20 **or** 17:55 + 5min = 18:00 18:00 + 1 hr = 19:00 19:00 + 15 min = 19:15	19 15	2	M1 for 17 55 + 1 20 (oe) or a complete build up method or 1875 or 1835 A1 for 19 15 , 7 15 p.m. (or equivalent)
	(ii)	18 34 – 17 55	39	1	B1 ft 19:54 – '19 15'

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Question		**Working**	**Answer**	**Mark**	**Notes**
7	(a)		25	1	B1 25 or 25.0
	(b)		3.5	1	B1 3.5 cao
	(c)	20 + 20 = 40 2.2 × 40 **OR** 2.2 × 20 = 44 44 + 44	88	3	M1 20 + 20 (= 40) M1 2.2 × '40' A1 cao **OR** M1 2.2 × 20 (= 44) M1 '44' + '44' A1 cao
8	(a)	40 ÷ 4 + 3 = 10 + 3 =	13	2	M1 for 40 ÷ 4 + 3 A1 cao
	(b)	9 – 3 × 4 = 6 × 4 =	24	3	M1 for subtraction of 3 or times 4 M1 (dep) for subtraction of 3 and times 4 A1 cao NB: the above could be shown as part of an equation.
9		26 ÷ 3 = 8 × 2 × 38 remainder 2 8 × 90 + 238 = 796	£7.96 or 796p	5	M1 for attempting to add carton prices or 26 ÷ 3 M1 26 × 38 or 988 seen M1 for "8" × 90 + "2" × 38 A1 £7.96 or 796p C1 ft (dep on M1) "£7.96" is the least they can spend

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Question		**Working**	**Answer**	**Mark**	**Notes**
10		0.1 × 240(=24) 216 ÷ '24'	9 weeks	4	M1 for 0.1 × 240 (oe), e.g. 240 ÷ 10 A1 for 24 M1 for 216 ÷ '24' A1 for 9
11			0.6 0.62 $\frac{13}{20}$ $\frac{2}{3}$ 70%	2	M1 for conversion to decimals or conversion to percentages or correct order with one error or correct order but largest first A1for correct order
12	(a)(i)		$3d^2$	1	B1
	(ii)		$4x - 3y$	2	B1 for $4x$ or $+ 4x$ B1 for $- 3y$ SC: Award B1 for: $4x - 3y$ followed by an incorrect expression
	(b)		3.5	2	M1 for $6x = 16 + 5$ or $6x = 21$ or $(16 + 5) \div 6$ or $6x - 21 = 0$ or $-6x - 21 = 0$; Condone omission of brackets or 16.8(333....) A1 for 3.5 or $\frac{7}{2}$ or $\frac{21}{6}$ oe

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Question		**Working**	**Answer**	**Mark**	**Notes**
***13**			Yes there is enough water in bucket C	4	M1 $\frac{2}{3}+\frac{3}{4}+\frac{5}{6}$ M1 $\frac{8}{12}+\frac{9}{12}+\frac{10}{12}$ oe with at least one correct numerator A1 $\frac{27}{12}$ oe C1 (dep on M1) yes, $\frac{27}{12}$ oe > 2, there is enough water in the bucket 12 27 **OR** M1 $1-\frac{2}{3}+1-\frac{3}{4}$ M1 $\frac{4}{12}+\frac{3}{12}$ oe with at least one correct numerator A1 $\frac{7}{12}$ oe C1 (dep on M1) yes, $\frac{5}{6}=\frac{10}{12}>\frac{7}{12}$, there is enough water in the bucket NB Accept decimals if written correct or truncated to 2 d.p.

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Question		**Working**	**Answer**	**Mark**	**Notes**
14		78 + 119 + 105 = 302 360 – 302 =58 180–58	122	3	M1 360 – (78 + 119 + 105) or 360 – 302 or 58 seen M1 (indep) 180 – "58" where the "58" must be < 90° and not 78° from the diagram. A1 cao
15	(a)	15 ÷ 6	2.5	2	M1 for 15 ÷ 6 oe A1 for 2.5 or $2\frac{1}{2}$
	*(b)		Yes + evidence	2	M1 for a correct method to change 15 miles into kilometres C1(dep on M1) for 24 km and statement with correct conclusion [SC: B1 for "Yes" oe and 24 km shown if M0 scored] **OR** M1 for a correct method to change 20 kilometres into miles C1(dep on M1) for 12.5 miles and statement with correct conclusion [SC: B1 for "Yes" oe and 12.5 miles shown if M0 scored]

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Question		**Working**	**Answer**	**Mark**	**Notes**
***16**		Angle *BAC* = 76° Angle *BAP* = 180° – 90° – 54° = 36° *x* = 76° – 36° OR Angle *QCD* = 54° Angle *ACP* = 180° – 76° – 54° = 50° *x* = 180° − 90° – 50 °	40^{o}	4	B1 for Angle *BAC* = 76° (could be just on the diagram) M1 for 76° – (“180° – 90 – 54°”) A1 for *x* = 40° (explicitly stated) C1 (dep on M1) for ‘the sum of the angles of a triangle is 180°’ and ‘alternate angles on parallel lines are equal’ OR B1 for Angle *QCD* = 54° (could be just on the diagram) M1 for 180° – 90° – (“180° – 76 °– 54°”) A1 for *x* = 40^{o} (explicitly stated) C1 (dep on M1) for ‘corresponding angles on parallel lines are equal’ and ‘sum of the angles on a straight line is 180^{o}’ and ‘the sum of the angles of a triangle is 180^{o}’ or ‘corresponding angles on parallel lines are equal’ and ‘exterior angle of a triangle is equal to the sum of the two interior opposite angles’ OR M1 for angle *QCB* = 180 – 54 (=126) M1 for 180 – 90 – “126 – 76” A1 for *x* = 40^{o} (explicitly stated) C1 (dep on M1) for ‘sum of allied angles = 180°’ and ‘the sum of the angles of a triangle is 180

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Question		**Working**	**Answer**	**Mark**	**Notes**
17	(a)		3, – 6, – 5	2	B2 cao for all 3 (B1 for any 1 or 2 correct)
	(b)		Quadratic graph	2	B2 for a fully correct graph **OR** B1 for all 7 points ft on (a) plotted correctly ± 1 sq B1 for a smooth curve through all 7 of their plotted points depending on at least B1 in (a)
	(c)	Draw $y = -3$	0.3, 3.7	2	B1 for 0.2 – 0.4 or ft from graph ± 1 square B1 for 3.6 – 3.8 or ft from graph ± 1square (SC: If no marks earned then B1 for line $y = -3$ drawn)
18		$\frac{48.45}{425}\times 100$ **OR** $\frac{11}{100}\times 425 = 46.75$	Katie spends more	3	M1 for $\frac{48.45}{425}\times 100$ A1 for 11.4 C1 (dep on M1)for conclusion ft from comparison of two percentages **OR** M1 for $\frac{11}{100}\times 425$ or for 10% = 42.5(0), 1% = 4.25, 42.5(0) + 4.25 A1 for 46.75 C1 (dep on M1) for correct follow-through from comparison of "46.75" and 48.45

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Question		**Working**	**Answer**	**Mark**	**Notes**
19		$\frac{\frac{1}{2}\times\pi\times10^2-\pi\times5^2}{2}$ = 12.5π	39.3	5	M1 for $\pi \times 5^2$ (= 78.5(39…)) or $\pi \times 10^2$ (= 314(.159…)) or 100π or 25π M1 for $\frac{1}{2}\times\pi\times10^2$ (= 157(.07…)) or 50π M1 (dep on at least one of the previous Ms) for $\frac{1}{2}\times\pi\times10^2-\pi\times5^2$ M1 (dep on previous M) for $(\frac{1}{2}\times\pi\times10^2-\pi\times5^2)\div2$ or $\frac{\text{'157.07...'}-\text{'78.53....'}}{2}$ or $25\pi/2$ A1 for answer in range 39.2 – 39.3 OR M1 for $\pi \times 5^2$ (= 78.5(39…)) or $\pi \times 10^2$ (= 314(.159…)) or 100π or 25π M1 for $\frac{1}{4}\times\pi\times10^2$ (= 78.5(398…)) or 25π M1 for $\frac{1}{2}\times\pi\times5^2$ (= 39.2(69…)) or 12.5π M1(dep on 2 previous Ms) for '78.5' – '39.2' A1 for answer in range 39.2 – 39.3

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Question		**Working**	**Answer**	**Mark**	**Notes**
20	(a)		30	1	B1 cao
	(b)		63	2	M1: [(4 × 0)] + (5 × 1) + (10 × 2) + (7 × 3) + (3 × 4) + (1 × 5) Or [0] + 5 + 20 + 21 + 12 + 5 (condone one error or omission or for 67 given as total) A1 cao
	(c)		2.1	2	M1 for an attempt to divide the number of customers by the number of tables A1 for 2.1 or ft from (a) and (b)
21	(a)		$\frac{5}{14}$	1	B1 for $\frac{5}{14}$ oe fraction
			54	3	M1 for 84 ÷ (5 + 9) (= 6) or 1 – "(a)" (=)
	(b)				M1 for 84 ÷ (5 + 9) × 9 oe or A1 cao
	(c)		6, green	3	M1 for correct method to find twice as many green beads as red beads, e.g. 2 × 30 (= 60) or 2 × (84 – "54") or "54" + "6" (= 60) A1 for 6 (green) OR if *n* reds are added then 2*n* + 6 (greens), where *n* and 2*n* could be numbers OR 30 (red) and 60 (green) C1 (dep on M1) for showing correct relevant working and clear conclusion stating number of green beads or stating total numbers of red beads and green beads
22			7.2	2	M1 starts process, e.g. $\cos 32° = \frac{x}{8.5}$ A1 for answer in range 7.2 to 7.21

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	C	D	E	F	G
1				NEW	Rounding	1				No data available			
2				NEW	Decimals and fractions	1				No data available			
3				NEW	Probability	1				No data available			
4				NEW	Constructions	1				No data available			
5	2540	2F	806	Q02	Factors; multiples, primes	4	86	3.45	3.76	3.56	3.35	3.11	2.71
6	1380	2F	1111	Q02	Time calculations	3	74	2.21	2.65	2.44	2.23	1.84	1.21
7	5AM1	1F	1406	Q04	Conversions	5	71	3.56	4.10	3.90	3.52	2.93	2.05
8	5AM1	1F	1106	Q05	Substitution into expressions	5	77	3.86	5.00	4.83	4.25	2.88	3.08
9	5AM2	2F	1111	Q09	Four operations	5	31	1.55	2.90	2.12	1.18	1.45	0.77
10	5AM1	1F	1306	Q13	Percentages	4	80	3.21	3.89	3.68	3.30	1.82	1.03
11	5MM2	2F	1211	Q11	Fractions, percentages, decimals	2	54	1.07	1.81	1.66	0.68	0.57	0.56
12	4MA0	1F	1405	Q09	Simplify expressions	5	71	3.54	4.49	3.84	2.74	1.73	0.85
13	5AM2	2F	1311	Q17	Ratio	4	29	1.14	2.09	0.84	0.30	0.03	0.00
14	1387	4I	711	Q05	Interior and exterior angles	3	61	1.83	2.22	1.32	0.64		
15	1MA0	2F	1303	Q24	Compound measures	4	59	2.36	3.37	2.81	2.08	1.21	0.53
16	5MM2	2F	1306	Q23	Angles	4	15	0.60	1.87	0.65	0.23	0.11	0.10
17	2540	2F	811	Q28	Graphs of quadratic equations	6	20	1.18	2.47	1.16	0.41	0.18	0.11
18	5AM1	1H	1111	Q07	Percentages	3	67	2.02	1.27	0.43	0.00		
19	5MM2	2H	1111	Q12	Area of a circle	5	61	3.06	2.07	0.60	0.33		
20	1MA0	2F	1406	Q17	Grouped frequency	5	32	1.60	2.74	2.00	1.52	1.16	1.01
21	5MM2	2H	1311	Q12	Probability	7	74	5.21	4.96	2.53	0.95		
22				NEW	Trigonometry	2				No data available			
						80							