

1MA1 Practice papers Set 4: Paper 2F (Regular) mark scheme – Version 1.0					
Question		Working	Answer	Mark	Notes
1.			$15ab$	1	B1 cao
2.			142	2	M1 for $720 - (110 + 92 + 158 + 85 + 133)$ or $720 - 578$  A1 for 142 cao
3.		(D, A) (J, A) (W, A) (D, M) (J, M) (W, M)	list of 6 combinations	2	B2 for six correct and distinct pairs  (B1 for at least 3 pairs and no incorrect pairs or all correct pairs with repeats)
4.	(i)		40	1	B1
	(ii)		(0).4	1	B1ft (if $0 < \% < 100$ ), i.e. allow ft if their % from (i) is between 0 and 100
5.	(a)(i)		unlikely	1	B1 cao
	(a)(ii)		impossible	1	B1 cao
	(b)		3 marked red 2 marked white	2	B1 for 3 red sectors written in  B1 for number of white sectors $>$ number of blue sectors

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6.			96	4	M1 for a method to find 36% of 400 (= 144)  M1 for a method to find $\frac{2}{5}$ of 400 (= 160)  M1 (dep on M2) for 400 – “144” – “160”  A1 cao
7.			25	2	M1 for $10 \div 40$ (= 0.25) or $10 \times 100 \div 40$  A1 cao
8.	(a)		9 to 9.1	1	B1
	(b)		11.8	1	B1
	(c)		1.4	1	B1
9.			e.g. 10, 12, 5, 2	3	M1 for at least 2 factors of 60 clearly identified  M1 for $20 < \text{sum of '4 distinct natural numbers'} < 35$  A1 cao

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10.			$57^\circ$	4	<p>M1 for a method to find angle <math>BCD</math>, e.g. <math>180 - 75 (= 105)</math></p> <p>M1 for a complete method to find <math>x</math></p> <p>A1 for <math>x = 57</math> with supporting working</p> <p>C1 (dep on M1) for “sum of the <u>angles</u> in a <u>quadrilateral</u> is <u>360(°)</u>” or equivalent quadrilateral theory.</p> <p>[Condone omission of other reasons]</p>
11.	(a)		0	1	B1 cao
	(b)	$(8 + 4 + 5 + 5 + 3 + 2 + 1) \div 10$	2.8	2	<p>M1 <math>(8 + 4 + 5 + 5 + 3 + 2 + 1) \div 10</math></p> <p>A1 cao</p>
12.	(a)		7	2	<p>M1 for <math>-15</math> and <math>\div 5.4</math></p> <p>A1 cao</p>
	(b)		$C = 5.4y + 15$	2	<p>C1 for <math>5.4y + 15</math> or <math>C =</math> linear expression in <math>y</math></p> <p>C1 for <math>C = 5.4y + 15</math> (oe)</p>

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13.	(a)			2	B2 conversion graph (line) drawn between 4.4 pounds and 15.4 pounds  (B1 for plotting at least 2 points from the table)
	(b)		4.4 – 4.6	1	B1 for 4.4 – 4.6 or ft graph (dep on single straight line)
	(c)		14.2 – 14.4	1	B1 for 14.2 – 14.4 or ft graph (dep on single straight line)
14.		$9.39 \times 10$ $24.30 \times 3 + 9.39$ $93.90 - 82.29$	£11.61	5	M1 for a correct method to find the most expensive way to buy the 10 cartridges (= 93.90)  M1 for a correct method to find the least expensive way to buy the 10 cartridges (= 82.29)  M1 (dep on M1 scored) for a correct method to find the difference between their least and their most expensive way, provided that both totals are for the cost of exactly 10 cartridges  A1 for 11.61  B1 (indep) for correct units

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15.	(a)		1.06	3	M1 for $6.99 \div 3 (= 2.33)$ or $3r + 6t = 13.35$  M1 for $\frac{1}{2} (4.45 - "2.33")$ or $6t = "13.35" - 6.99$  A1 cao
	(b)		Henri 7.15 Ray 4.29	3	M1 for $11.44 \div (5 + 3) (=1.43)$  M1 for $"1.43" \times 5 (= 7.15)$ <b>or</b> $"1.43" \times 3 (= 4.29)$  A1 for Henri and 7.15 and Ray and 4.29
16.		$500 \times 1.2$ (oe) = 600 $600 \div 12 =$	50	4	M2 for $500 \times 1.2 (= 600)$ (oe)  (M1 for $500 \times 0.2 (= 100)$ (oe)  M1 for $600 \div 12$ or $100 \div 12$ or $1.2 \div 12$ or $500 \div 12$  A1 cao
17.		$18.6^2 - 7.2^2 (= 294.12)$  $\sqrt{294.12}$ or $\sqrt{(18.6^2 - 7.2^2)}$	17.1	3	M1 for squaring <b>and</b> subtracting  M1 (dep) for square root  A1 for answer in the range 17.1 – 17.15

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18.		$2(x + x + 10) = 40$  $4x + 20 = 40$  $4x = 20$  $x = 5$	5	4	<p>M1 for algebraic method to set up Amy and Beth's ages as <math>x</math> and <math>x + 10</math></p> <p>M1 for setting up the equation <math>2(x + x + 10) = 40</math> oe</p> <p>M1 for <math>4x + 20 = 40</math></p> <p>A1 cao</p>
19.		<p><b>5A</b>  <math>= 150 + 150 + 150 + 150 + 150</math>   <math>= 35p \times 5 = £1.75</math></p> <p><b>2C + A</b>  <math>= 300 + 300 + 150</math>   <math>= £1.60 + 35p = £1.95</math></p> <p><b>3B + A</b>  <math>= 200 + 200 + 200 + 150</math>   <math>= 45p \times 3 + 35p = £1.70</math></p> <p><b>3A + C</b>  <math>= 150 + 150 + 150 + 300</math>   <math>= 35p \times 3 + 80p = £1.85</math></p>	£1.70	4	<p>M1 for attempt to find at least 2 different combinations of weights (can be implied by costs) with at least one correct that add to 750g</p> <p>M1 for identifying and attempting to calculate the costs of two out of the four possibilities from 5A or 2C + A or 3B + A or 3A + C oe (can be implied by the costs)</p> <p>A1 for at least 3 costs correct from £1.75, £1.95, £1.70, £1.85 ignore units)</p> <p>C1 ft (dep on M1) for £1.70 (or 170p) identified as lowest cost from all four possible combinations</p>

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20.		e.g. $4a + 3b = 250$ $3a + 4b = 240$  $(\times 3) \quad 12a + 9b = 750$ $(\times 4) \quad 12a + 16b = 960$  Subtract $7b = 210$ so $b = 30$  Substitute $4a + 90 = 250$ $4a = 250 - 90 = 160$	(i) 40  (ii) 30	5	B1 for correct equations expressed in terms of two variables (oe)  M1 for correct process to eliminate either variable (condone one arithmetic error)  A1 for either (£)0.4 or (£)0.3 (oe)  M1 (dep on first M1) for correct substitution of their found variable  A1 cao for both (i) 40 and (ii) 30
21.	(a)		3, 6, 9	1	B1 condone {3, 6, 9}
	(b)		{2, 3, 4, 6, 8, 9, 10}	1	B1 condone omission of brackets
	(c)		{6}	1	B1 condone omission of brackets
	(d)		3, 9	2	B2 cao  (B1 for one of 3, 9 with no incorrect numbers <b>or</b> 3, 6, 9)
22.		$7200 \div 0.75$  $75\% = 7200$  $1\% = 7200 \div 75 = 96$  $100\% = 96 \times 100$	9600	3	M2 for $7200 \div (1 - 0.25)$  A1 for 9600  A1 for 9600

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23.	(a)		Liz explanation	1	B1 Liz because she carried out most trials
	(b)	$12 + 34 + 57 = 103$	$0.23$ or $\frac{103}{440}$	2	M1 $(12 + 34 + 57)/b$ where $b > 103$
		$40 + 100 + 300$			or $a/(12 + 28 + 34 + 66 + 57 + 243)$ where $a < 440$
		$103 \div 40$			A1 $0.23$ or $0.234(09\dots)$ or $\frac{103}{440}$ (oe)



National performance data from Results Plus

Original source of questions					Max score	Mean score of students achieving grade:					
Qn	Spec	Paper	Session YYMM	Qn		ALL	C	D	E	F	G
1	NEW				1	No data available					
2	5MM2	2F	1106	Q09	2	1.69	1.98	1.87	1.90	1.73	1.18
3	1MA0	2F	1406	Q06	2	1.79	1.97	1.95	1.91	1.85	1.71
4	4MA0	2F	1401	Q02	2	1.86	1.94	1.91	1.81	1.52	1.31
5	5AM2	2F	1506	Q02	4	3.53	3.93	3.78	3.55	3.09	2.53
6	5MM2	2F	1506	Q15	4	2.39	3.73	3.35	2.39	1.04	0.45
7	NEW				2	No data available					
8	4MA0	2F	1401	Q09	3	2.32	2.72	2.37	1.98	1.39	1.31
9	1MA0	2F	1206	Q16	3	1.94	2.69	2.37	1.93	1.31	0.74
10	5MM2	2F	1506	Q14	4	1.69	3.43	2.66	1.17	0.27	0.01
11	1387	2F	711	Q14	3						
12	NEW				4	No data available					
13	5AM2	2F	1411	Q05	4	2.49	3.15	2.92	2.10	1.47	1.25
14	1MA0	2F	1303	Q11	5	2.87	3.78	3.23	2.69	1.96	1.18
15	5AM2	2H	1506	Q03	6	5.80	5.77	5.28	2.69		
16	5AM1	1H	1106	Q01	4	3.23	2.54	2.00	1.00		
17	4MA0	2H	1405	Q08	3	2.66	1.86	0.75	0.15		
18	5AM1	1F	1411	Q24	4	1.66	2.45	2.06	1.10	1.27	0.14
19	5AM2	2F	1211	Q17	4	1.94	2.39	2.36	1.69	1.24	0.74
20	5AM1	1H	1211	Q13	5	3.58	2.92	0.67	0.00		
21	4MA0(R)	2F	1501	Q24	5	2.09	2.67	1.31	1.00	1.00	
22	5AM1	1H	1211	Q10	3	1.62	0.76	0.60	0.00		
23	5AM2	2F	1106	Q19	3	0.39	0.34	0.72	0.50	0.00	0.25
					80						