

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0					
Question		Working	Answer	Mark	Notes
1			$\frac{1}{2}$	1	B1 for $\frac{1}{2}$ or an equivalent fraction
2			0.17	1	B1 cao
3			$\frac{4}{5}$	2	M1 for $\frac{40}{50}$ oe , A1 cao
4			18	2	M1 for $24 \div 4 \times 3$ oe A1 cao
5			125	2	M1 for complete method using graph eg 50 euros = £42; 42×3 A1 for $122 - 128$
6			36 120° 42	1 1 2	B1 cao for Cazda B1 cao for Zusuki M1 for correct method from using 105° e.g. $18 \div 45 \times 105$, “36” $\div 90 \times 105$ or from table, e.g. Cazda “36” $\times 4 - (18 + 36 + 48)$ A1 for 42 or ft values from their table.
7			Jane should buy Greens Garden Shop + costs	4	M1 for Suttons: $140 \div 20 (= 7)$ bags of compost needed M1 for $3 \times 3.25 (= 9.75) + 1 \times 2.25 (= 12)$ M1 for Greens: cost of 2 bags eg $\times 4.99 (= 9.98)$, $2 \times 5 (= 10)$ C1 for correct conclusion from a comparison of correct appropriate figures

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Question		Working	Answer	Mark	Notes
8	(a)		25	1	B1 cao
	(b)		yes with correct comparative figures	3	<p>M1 for method to calculate journey time travelling at 30 mph, eg $\frac{20}{30}$ (=0.66...) or 40 (mins)</p> <p>M1 (dep) for method to work out arrival time at home, (consistent units), eg 18 10 + “40 mins” (=18 50)</p> <p>C1 for yes with comparison of 40 minutes with 50 minutes or stating arrival time home as 18 50</p> <p>OR</p> <p>M1 for method to calculate speed in order to get home by 1900 eg $20 \div \frac{50}{60}$ (= 24 mph)</p> <p>M1 (dep) for stating speed as 24 mph</p> <p>C1 for yes with supporting calculations showing speed as 24 mph</p>
9	(a)	4×3	12	1	B1 cao
	(b)		5	2	<p>M1 for $4 \times 2 - 3$</p> <p>A1 cao</p>

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Question		Working	Answer	Mark	Notes
10	(a)		37, 41	2	B1 for 37; B1 for 41
	(b)		e.g. added 4; +4	1	B1 for sight of $4n + 13$
	(c)		61	1	B1 cao
	(d)		e.g. even number all numbers in sequence are odd	1	B1 69, 73 are in the sequence or solution of $4n + 13 = 70$ does not give an integer
11		$143.64 \div 19 = 7.56$ $7.56 \times 31 =$	234.36	3	M1 for $143.64 \div 19$ (or 7.56 seen) or 143.64×31 (or 4452.84 seen) M1(dep) for ‘7.56’ $\times 31$ or ‘4452.84’ $\div 19$ or $143.64 + 12 \times 7.56$ A1 for 234.36 cao accept 234.36p Alternative method: M1 for $\frac{31}{19}$ (or 1.63(1...) seen) M1 (dep) ‘1.63...’ $\times 143.64$ A1 for 234.36 cao accept 234.36p

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Question		Working	Answer	Mark	Notes
12	(a)	Smart phone 838 DVDs $4 \times 16 = 64$ Lawnmower $57 \div 3 \times 12$ $= 19 \times 12 = 228$ $838 + 64 + 228 = 1130$	1130	3	M1 for $57 \div 3 \times 12$ or 228 seen M1 for $838 + 4 \times 16 + '57 \div 3 \times 12'$ A1 cao
	(b)	$4500 \div 500 = 9$ 9×2.40 $= 21.60$ Or $22 \div 2.40 = 9.1666...$ $9.1666... \times 500$ $= 4583.33...$	No with explanation	4	M1 for $4500 \div 500 (= 9)$ (maybe implied by 9 lots of 500 seen) M1 for $'9' \times 2.40$ A1 cao for 21.60 C1 (dep on M1) f.t. for 'No' Decision must be stated and must be attributable from a correct method. for $22 \div 2.40 (= 9.1666)$ Or M1 for $'22 \div 2.40' \times 500$ A1 for answer in range 4583 to 4583.33.... C1 (dep on M1) f.t. for 'No' Decision must be stated and must be attributable from a correct method.

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Question		Working	Answer	Mark	Notes
		Or £2.40 needs 500 points £24 needs 5000 points 24 – 2.40 needs 4500 points £21.60 needs 4500 points			Or M1 for £24 (or 2400p) = 5000 M1 for 24 – 2.40 (or 2400 – 240) = 4500 A1 cao for 21.60 C1 (dep on M1) f.t. for ‘No’ Decision must be stated and must be attributable from a correct method.
13	(a)		$50 < a \leq 60$	1	B1 for correctly identifying the modal class interval e.g. 50 – 60 oe
	(b)		Polygon	2	B2 for fully correct frequency polygon - points plotted at the midpoint (B1 for all points plotted accurately but not joined with straight line segments) or all points plotted accurately and joined with last joined to first to make a polygon or all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon)

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Question	Working	Answer	Mark	Notes																				
14	$60 - 29 = 31$ $13 - 8 = 5$ $31 - 10 - 5 = 16$ <table border="1"> <tr> <td></td><td>Th</td><td>C</td><td>It</td><td></td></tr> <tr> <td>W</td><td>6</td><td>15</td><td>8</td><td>29</td></tr> <tr> <td>M</td><td>16</td><td>10</td><td>5</td><td>31</td></tr> <tr> <td></td><td>22</td><td>25</td><td>13</td><td>60</td></tr> </table>		Th	C	It		W	6	15	8	29	M	16	10	5	31		22	25	13	60	16	4	<p>M1 for calculation of total Men $60 - 29 (= 31 \text{ Men})$</p> <p>M1 for calculation for Men who like Italian $13 - 8 (= 5 \text{ Men like Italian})$</p> <p>M1 for calculation for Men who liked Thai '$31 - 10 - 5$'</p> <p>A1 for 16</p> <p>OR</p> <p>M1 for a 2-way table or diagram with clear labelling showing at least 3 pieces of the given information correctly placed</p> <p>M1 for correct method for one calculated entry in diagram: Men $60 - 29 (= 31)$ or Women and Chinese $29 - 8 - 6 (= 15)$ or Men and Italian $13 - 8 (= 5)$</p> <p>M1 for 3 correct entries for Men or 2 correct entries for Thai that with correct arithmetic would lead to 16 (Men and Thai)</p> <p>A1 for 16</p>
	Th	C	It																					
W	6	15	8	29																				
M	16	10	5	31																				
	22	25	13	60																				
15	$(7 + 3 + 3) \times (4 + 3 + 3) - 7 \times 4 = 102$ or $2 \times 7 \times 3 + 2 \times 4 \times 3 + 4 \times 3 \times 3 = 102$	11	4	<p>M1 for a correct method to find the area of one appropriate rectangle</p> <p>M1 for a complete method to find the area of the path</p> <p>M1 (dep on M1) for "$102 \div 10$"</p> <p>A1 cao</p>																				

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Question		Working	Answer	Mark	Notes
16	(a)		Evens	1	B1 cao
			Certain	1	B1 cao
	(b)		4	2	M1 for 14 or $\frac{3+7}{n} = \frac{5}{7}$ or any fraction equivalent to $\frac{2}{7}$ or $\frac{5}{7}$ A1 cao
17	(a)		A and C	1	B1 for A and C (no extras)
	(b)		B or E	1	B1 for B or E (or both) (no extras)
	(c)		2	1	B1 cao
18			77	3	M1 for $21 \div 6 (= 3.5)$ for sf length or $21 \div 6 \times 5 (=17.5)$ M1 for $3 \times "3.5" + 3 \times "3.5" + 21 + 21$ or $17.5+17.5+21+21$ oe A1 cao OR M1 for $21 \div 6 (=3.5)$ for sf length M1 for $(6+5+6+5) \times "3.5"$ or 22×3.5 oe A1 cao

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Question		Working	Answer	Mark	Notes
19		$x + x + 4 + 3(x + 4) = 51$ $2x + 4 + 3x + 12 = 51$ $5x + 16 = 51$ $5x = 35$ $5x = 35 \div 5$	Ann 7 Beth 11 Cath 33	5	M1 for $x + 4$ or $3(x + 4)$ oe seen M1 for $x + 'x + 4' + '3(x + 4)'$ M1 $x + 'x + 4' + '3(x + 4)' = 51$ A1 for 7 or 11 or 33 C1 for Ann 7, Beth 11, and Cath 33 oe OR M1 for using a value for n , eg $n + 4$ or $4 \times n$ M1 for attempting a trial using n , $n + 4$ and $3(n + 4)$ M1 for at least 2 trials with correct totals for ' n ' A1 for 11 or 33 C1 for Ann 7, Beth 11, and Cath 33 oe
20			A and 3 B and 2 C and 4 D and 1	2	B2 for all 4 correct (B1 for 2 correct)
21		$1 - (0.008 + 0.015)$	0.977	2	M1 for $1 - (0.008 + 0.015)$ oe A1 for 0.977 oe

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22	(a)		7.5	3	M1 for $4.5^2 + 6^2 (=56.25)$ M1 for $\sqrt{56.25}$ or $\sqrt{(4.5^2 + 6^2)}$ A1 for 7.5
	(b)		217	4	M1 for use of appropriate trig ratio, e.g. $\tan CAB = \frac{4.5}{6} (= 0.75)$, $\sin CAB = \frac{4.5}{7.5} (= 0.6)$, $\cos CAB = \frac{6}{7.5} (= 0.8)$ M1 for inverse trig shown correctly, e.g. $CAB = \tan^{-1} \frac{4.5}{6} (= 0.75)$, $CAB = \sin^{-1} \frac{4.5}{7.5} (= 0.6)$, $CAB = \cos^{-1} \frac{6}{7.5} (= 0.8)$ A1 for 36.8 to 37 (or 53 to 53.2 if identified as ACB) B1ft for bearing $180 + "36.8"$ if " 36.8 " is not 40–50, e.g. 216.8 to 217
23		$16 \times 7 = 112$ $112 - 87$	25	2	M1 for $6 \times 14.5 (= 87)$ or $7 \times 16 (=112)$ or $6 \times 1.5 (= 9)$ or $7 \times 1.5 (= 10.5)$ A1 for 25

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24			126	3	<p>M1 for $180 - (360 \div 5) (= 108)$ or $(5 - 2) \times 180 \div 5 (= 108)$</p> <p>M1 for a complete method eg $\frac{360 - "108"}{2}$ or $180 - \frac{"108"}{2}$</p> <p>A1 cao</p>

National performance data from Results Plus

	Original source of questions						Mean score of students achieving grade:					
Qn	Spec	Paper	Session YYMM	Qn	Topic	Max score	ALL	C	D	E	F	G
1	5MM2	2F	1306	Q09a	Fractions	1	0.80	0.99	0.98	0.96	0.88	0.80
2	5MM2	2F	1306	Q09b	Decimals	1	0.82	0.96	0.95	0.91	0.75	0.70
3	5MM2	2F	1306	Q09c	Fractions	2	1.61	0.73	0.48	0.37	0.33	0.34
4	5MM2	2F	1306	Q09d	Fractions	2	1.38	0.95	0.90	0.86	0.76	0.68
5	1MA0	2F	1611	Q15b	Conversions	2	Data to be added in January 2017					
6	1MA0	2F	1611	Q8	Pie charts	4	Data to be added in January 2017					
7	1MA0	2F	1611	Q10	Ratio	4	Data to be added in January 2017					
8	1MA0	2F	1611	Q21	Compound measures	4	Data to be added in January 2017					
9	1MA0	2F	1306	Q08	Substitute into expressions	3	1.78	2.88	2.59	1.96	1.08	0.46
10	4MA0(R)	1F	1501	Q05	Sequences	5	4.53	4.76	4.61	4.66	4.00	1.00
11	1380	2H	906	Q05	Decimals	3	2.88	2.83	2.59	2.00		
12	5AM2	2F	1211	Q20	Ratio	7	5.26	6.45	5.97	5.27	3.52	1.53
13	1MA0	1F	1611	Q22	Grouped frequency	3	Data to be added in January 2017					
14	5AM1	1H	1306	Q13	Two-way tables	4	3.66	3.56	2.96	1.62		
15	1MA0	1F	1611	Q23	Area	4	Data to be added in January 2017					
16	1MA0	2F	1311	Q16	Probability	4	2.37	3.23	2.63	2.15	1.80	1.51
17	1MA0	2F	1211	Q13	Congruence and similarity	3	1.73	2.37	1.96	1.65	1.35	0.98
18	5AM2	2H	1411	Q05	Scale factors	3	2.28	2.11	1.21	1.00		
19	5AM1	1H	1211	Q09	Solve linear equations	5	3.87	3.48	2.73			
20	1380	2H	1011	Q11	Distance-time / travel graphs	2	0.89	0.77	0.66	0.57		
21	5AM2	2H	1111	Q06	Probability	2	1.47	1.62	1.00	0.00	0.00	0.00
22	1MA0	2H	1406	Q15	Pythagoras in 2D	7	2.91	2.16	0.88	0.20		
23	1380	2H	1203	Q02	Mean, median, mode	2	0.71	0.45	0.14	0.07		
24	1MA0	2H	1611	Q14	Angles	3	Data to be added in January 2017					
					TOTAL	80						