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# Year 11 Predicted paper 2017

## Mark Scheme

Date:

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Time:

Total marks available:

Total marks achieved: \_\_\_\_\_

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## Mark Scheme

Q1.

Paper 1MA1:3F			
Question	Working	Answer	Notes
		Venn diagram	M1 for two overlapping and labelled ovals M1 for 2 and 6 in the intersection M1 for 5 and 7 in the universal set only C1 for a fully correct Venn Diagram

Q2.

Question	Working	Answer	Notes
(a)(i)		10, 12, 14, 15, 16, 18	B1 cao
(ii)		12, 18	B1 cao
(b)		$\frac{7}{10}$	M1 for 7 or indicating correct region or for 10, 14, 16, 11, 13, 17, 19 listed  A1 for $\frac{7}{10}$ oe

Q3.

PAPER: 5MB3F_01				
Question	Working	Answer	Mark	Notes
(a)		145	1	B1 accept 143 – 147
(b)		7 – 9	4	M1 for carrying out a correct measurement of one of the lines eg (AC as) 10.3 – 10.7 or (BC as) 7.8 – 8.2 or (AB as) 6.3 – 6.7 M1 for scaling at any stage (by $\times 2$ ) M1 for complete process of lengths AC – (AB + BC) ; scaled or unscaled A1 for answer in range 7 – 9

Q4.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
		20.9	<p>M1 correct recall of appropriate formula eg. <math>\sin x = \frac{5}{14}</math></p> <p>A1 for 20.9(248...)</p>

Q5.

PAPER: 1MA0/2F				
Question	Working	Answer	Mark	Notes
(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 <math>\frac{20}{30}</math> (=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 <math>20 \div \frac{50}{60}</math> (= 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>

Q6.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		152	M1 Start to method $ABD = 38^\circ$ and $BAD$ or $DBC$ or $DCB = 38^\circ$ M1 $ADB$ or $BDC = 180 - 2 \times 38 (= 104)$ A1 for 152 with working

Q7.

Question	Working	Answer	Mark	AO	Notes
		18	P	3.1b	P1 for a process to start to solve problem, e.g. $8x + x = 180$ or $180 \div 9 (=20)$
			P	3.1b	P1 for a full process to solve problem, e.g. $360 \div '20'$
			A	1.3b	A1 cao

Q8.

Question	Working	Answer	Notes
		Translation by $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$	B1 for translation
			B1 $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$

Q9.

Paper: 5MB3F_01				
Question	Working	Answer	Mark	Notes
		enlarge ment scale factor 3 centre $O$	3	B1 for enlargement B1 for scale factor 3 B1 for (centre) $O$ oe NB: B0 for any combination of transformations

Q10.

Question	Working	Answer	Mark	AO	Notes
(a)	$3x + 5y = 4$ $10x - 5y = 35$  $13x = 39$	$x = 3, y = -1$	M	1.3b	M1 for correct method to eliminate one variable
			M	1.3b	M1 for correct method to find second variable
			A	1.3b	A1 for $x = 3$ and $y = -1$
(b)	$x + 5 > 8$ $x > 3$ $2x - 3 < 7$ $2x < 10$ $x < 5$	$x = 4$	B	1.3b	B1 for $x > 3$ or for $x < 5$
			B	1.3b	B1 for $x > 3$ and for $x < 5$
			B	1.3b	B1 for $x = 4$ from $x > 3$ and $x < 5$

Q11.

Question	Working	Answer	Mark	Notes
(a)		21	1	B1 cao
(b)		$4n+1$	2	M1 for $4n + k$ ( $k \neq 1$ ) A1 oe NB $n = 4n + 1$ gets M1 only.

Q12.

	Working	Answer	Mark	Notes
(a)		5, -4, -3	2	B2 for 5, -4 and -3 (B1 for 5 or -4 or -3)
(b)		correct curve	2	B2 for fully correct curve (B1 ft for at least 5 points plotted correctly)

Q13.

Question	Working	Answer	Mark	Notes
(a)		3 (5) 7 (9) 11, 13	2	B2 for 3, 7, 11, 13 (B1 for 2 or 3 correct values)
(b)		Graph drawn	2	M1 (may ft from (a) if B1 awarded) for at least 5 points correctly plotted A1 for correct graph from $x = 0$ to $x = 5$

Q14.

Question	Working	Answer	Mark	Notes										
(a)		<table border="1"> <tr><td>5</td><td>9</td></tr> <tr><td>6</td><td>3 5 6 6</td></tr> <tr><td>7</td><td>1 2 5 5 6 7 9 9</td></tr> <tr><td>8</td><td>3 9</td></tr> </table> <p>Key: eg, 7/2 represents 72</p>	5	9	6	3 5 6 6	7	1 2 5 5 6 7 9 9	8	3 9	3	M1 for at least 2 correct 'rows' with correct stem and correct ordered or unordered leaf A1 for a fully correct ordered stem and leaf diagram B1 for a key		
5	9													
6	3 5 6 6													
7	1 2 5 5 6 7 9 9													
8	3 9													
(*b)	<table border="1"> <tr><td>Gill</td><td>Jamal</td></tr> <tr><td>HV 95 &gt;</td><td>HV 89</td></tr> <tr><td>LV 75 &gt;</td><td>LV 59</td></tr> <tr><td>Mean 80 &gt;</td><td>Mean 73</td></tr> <tr><td>Range 20 &lt;</td><td>Range 30</td></tr> </table>	Gill	Jamal	HV 95 >	HV 89	LV 75 >	LV 59	Mean 80 >	Mean 73	Range 20 <	Range 30	Comparisons	5	<p>[Ignore spacing on leaves provided the order is correct]</p> <p>M1 for '72+59+76+...'+15 or 1095 ÷ 15 (= 73) M1 for 95 – 75 (=20) <b>or</b> '89' – '59' (= 30) or '89' and '59' seen ft from their stem and leaf diagram in (a) A1 for mean of Jamal's scores is 73 cao or for ranges of 20 and 30 cao C1 (dep on first M1) ft for a correct comparison of mean scores, e.g. Gill's mean score &gt; Jamal's mean score oe C1 ft for a correct comparison of ranges, (dep on M1 awarded for correct method to find range) e.g. The range of Gill's scores &lt; The range of Jamal's scores <b>or</b> a correct comparison of both end values (dep on M1 awarded for '89' and '59' seen) , e.g. Gill's lowest score &gt; Jamal's lowest score and Gill's highest score &gt; Jamal's highest score. oe</p> <p>[For the award of C2, the word 'score' must be explicitly stated. If not deduct 1 mark]</p>
Gill	Jamal													
HV 95 >	HV 89													
LV 75 >	LV 59													
Mean 80 >	Mean 73													
Range 20 <	Range 30													

Q15.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
(a)		$22 \leq f < 24$	B1
(b)		21.9	M1 $x \times f$ using midpoints M1 (dep on previous mark) " $x \times f$ " $\div 40$ A1 accept 22 if working seen

Q16.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
(a)		42, 58 39, 3, 53, 5	C1 starts to interpret information eg. one correct frequency C1 continue to interpret information C1 communicates all information correctly
(b)		$\frac{5}{58}$	M1 ft for $\frac{a}{58}$ with $a < 58$ or $\frac{5}{b}$ with $b > 5$ A1 ft from (a)

Q17.

Paper 1MA1: 2F			
Question	Working	Answer	Notes
		0.06	M1 for 0.2 and 0.3 A1 cao

Q18.

Question	Working	Answer	Mark	Notes
	34 44 78 42 28 70 76 72 148	Complete table	3	B3 all correct  (B2 for 5, 6, 7 or 8 correct) (B1 for any 2 of the 4 given correctly placed)

Q19.

PAPER: 5MB3F_01				
Question	Working	Answer	Mark	Notes
(a)		3.5	1	B1 cao
(b)		3000	1	B1 cao
(c)		30000	2	M1 for $3 \times 100 \times 100$ oe A1 cao

Q20.

Question	Working	Answer	Mark	Notes
		$A = 13x + 8$	3	M1 for $5(2x + 1)$ or $3(x + 1)$ or $5 \times 2x + 1 + 3 \times x + 1$ M1 for $5(2x + 1) + 3(x + 1)$ or $13x + 8$ oe A1 for $A = 13x + 8$ oe OR M1 for $8(x + 1)$ or $5x$ or $8 \times x + 1 + 5x$ M1 for $8(x + 1) + 5x$ or $13x + 8$ oe A1 for $A = 13x + 8$ oe OR M1 for $8(2x + 1)$ or $3x$ or $8 \times 2x + 1 - 3x$ M1 for $8(2x + 1) - 3x$ or $13x + 8$ oe A1 for $A = 13x + 8$ oe

Q21.

Question	Working	Answer	Mark	Notes
	$8 \times 1.5$ $20.90 \div 2$ $1.5 \times 18$ $28.95 + 12 + 20.90 + 27$	£12(.00) £10.45 £27(.00) £88.85	4	B1 B1 B1 B1 ft total of four figures: $28.95 + "12" + 20.90 + "27"$

Q22.



Question	Working	Answer	Mark	Notes
(a)		0.25	1	B1 cao
(b)		$\frac{7}{10}$	1	B1 for $\frac{7}{10}$ oe
(c)		$\frac{21}{25}$	2	M1 for $\frac{42}{50}$ oe A1 cao
(d)		50	1	B1 cao

Q23.

Question	Working	Answer	Mark	Notes
* (a)	$13.55 \times 1.65 = 22.3575$ $3.10 \div 160 \times 1000 = 19.375$ OR $13.55 \times 1.65 = 22.3575$ $22.3575 \div 1000 \times 160 = 3.5772$ OR $3.10 \div 1.65 = 1.8787\dots$ $1.8787\dots \div 160 \times 1000 \text{ per kg}$ OR $1355 \div 1000 = 1.355 \text{ p/g}$ $3.10 \div 1.65 = 187.87\dots \text{ p}$ $187.87\dots \div 160 = 1.1742\dots \text{ p/g}$ OR $3.10 \div 160 = 0.019375$ SF/g $13.55 \times 1.65 \div 1000 = 0.0223575 \text{ SF/g}$	Switzerland, with correct explanation	4	M1 for a correct method to obtain two comparable weights e.g. cost of 1kg in Switzerland, $\div 160 \times 1000, \times 6.25$ (cost of 1 kg in England given) or cost of 160g in England, $\div 1000 \times 160$ (cost of 160g in Switzerland given) or cost per gram in each country, $\div 160$ and $\div 1000$ or cost of 800g in each country  M1 for converting £ to Swiss francs or Swiss francs to £ (other than £1 = 1.65 SFr) A1 for two correct values (using same units) for comparison. C1 for country identified from a clear attempt to use comparable weights and prices. QWC: Decision must be stated, with calculations clearly attributable

Q24.

Question	Working	Answer	Mark	Notes
		(P, B), (P, S), (P, L) (M, B), (M, S), (M, L) (H, B), (H, S), (H, L)	2	M1 for any 3 combinations with no incorrect combinations A1 for all 9 combinations with no duplicates or extras

Q25.

5MB1H_01				
Question	Working	Answer	Mark	Notes
(a)		11 13 9 10 12 13 15 10 11 13 14 16	1	B1 table completed correctly
(b)	$\frac{6}{20}$ or 0.3	$\frac{6}{20}$	2	M1 ft for $\frac{a}{20}$ ( $a \neq 6$ ) and $a < 20$ or $\frac{6}{b}$ ( $b \neq 20$ ) and $b > 6$ A1 ft for $\frac{6}{20}$ oe
(c)		£21 with supporting calculations	4	M2 for $\frac{2}{20} \times 60 \times (1.50 \text{ or } 150)$ oe  (M1 for $\frac{2}{20} \times 60$ oe or $\frac{2}{20} \times 1.50$ oe or $\frac{2}{20} \times 150$ oe or $60 \times 150$ or $60 \times 1.50$ or sight of any of numbers (6, 15, 0.15, 9000, 90) M1 (income) $60 \times 0.5 (=30)$ or $60 \times 50 (=3000)$ A1 (Dep on at least 2 previous method marks) 21 cao

Q26.

Paper 5MB1H_01				
Question	Working	Answer	Mark	Notes
(a)		Frequency 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) <b>or</b> all points plotted accurately and joined with last joined to first to make a polygon <b>or</b> 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) NB: ignore parts of graph drawn to the left of the 1 <sup>st</sup> point or the right of the last point
(b)		$160 < h \leq 180$	1	B1 for $160 < h \leq 180$ (could be ft from diagram)

Q27.

Question		Working	Answer	Mark	Notes
	(a)		4, 6, 8, 2	2	B2 all frequencies correct (B1 2 frequencies correct OR 2 tallies correct OR 1 tally with its frequency correct)
	(b)		silver	1	B1 for silver or ft from table

Q28.

Question		Working	Answer	Mark	Notes
	(a)		- 5	1	B1 cao
	(b)		6	1	B1 for 6 or - 6
	(c)		3	1	B1 cao

Q29.

Paper 1MA1:3F				
Question	Working	Answer	Notes	
		8	B1 cao	

Q30.

		Working	Answer	Mark	Notes
		- 5, 0.2, 0.5, 1	-5, $5^{-1}$ , 0.5, $5^0$	2	M1 for either $5^{-1}$ or $5^0$ evaluated correctly A1 for a fully correct list from correct working, accept original numbers or evaluated (SC B1 for one error in position or correct list in reverse order)

Q31.

PAPER: IMA0_2F				
Question	Working	Answer	Mark	Notes
(a)		92.3521	1	B1 cao
(b)		$p^6$	1	B1 cao
(c)		$t^5$	1	B1 cao
(d)		6	1	B1 cao

**Q32.**

Question	Working	Answer	Mark type	AO	Notes
(a)		720	P	3.1c	P1 attempt to find the maximum biscuits for one of the ingredients, e.g. $5000 \div 150 (= 33.3..)$ or $2500 \div 75 (= 33.3..)$ or $3000 \div 100 (= 30)$ or $320 \div 10 (= 32)$ P1 for identifying butter as the limiting factor or $30 \times 24 (= 720)$ seen A1 for 720 cao
			P	3.3	
			A	1.3b	
(b)		116.25%	M	1.3b	M1 for a correct method of finding either 70% (= 504) or 30% (= 216) of 720 P1 for a process to find the cost of "216" at 55p for 4 (= £29.70) P1 for a process to find revenue, e.g. " $504 \times £0.25 + £29.70$ " (= £155.70) P1 for a process to find profit, e.g. " $£155.70 - £45 - £27$ " (= £83.70) M1 for $\frac{83.70}{72} \times 100$ A1 for 116.25%
			P	3.1b	
			P	3.1b	
			P	3.1b	
			M	1.3b	
A	1.3b				

**Q33.**

	Working	Answer	Mark	Notes
(a)		720	2	M1 for $6 \times 120$ or $600 \times 120 \div 100$ oe A1 for 720 oe (accept 720.0)
(b)		£10 or €12	3	M1 for $540 \div 1.2$ (=450) oe, eg $4 \times 100 + 50$ (=450) M1(dep) for $460 - '450'$ (=10) A1 for £10 oe (accept £10.0)  OR M1 for $460 \times 1.2$ (=552) oe, eg $4 \times 120 + 60 + 12$ (=552) M1 (dep) for '552' – 540 (=12) A1 for €12 oe (accept €12.0)

Q34.

PAPER: 5MB3F_01				
Question	Working	Answer	Mark	Notes
(a)		$\frac{75}{200}$	1	B1 for $\frac{75}{200}$ or equivalent fraction
(b)		6	2	M1 for $\frac{81}{1350} \times 100$ oe  A1 cao

Q35.

Paper 1MA1: 3F			
Question	Working	Answer	Notes
	0.43, 0.428..., 0.438. 0.4375	$\frac{3}{7}$ , 0.43, $\frac{7}{16}$ , 43.8%,	M1 Converts numbers to common format e.g decimals to at least 3 d.p. A1

Q36.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		75	P1 for start to process eg. linking 20% with 15 or $100 \div 5$ (= 20)  A1

Q37.

Question	Working	Answer	Notes
		$t = 3(y + 2a)$	M1 adding $2a$ to both sides or multiplying each term by 3 A1 $t = 3(y + 2a)$ or $t = 3y + 6a$