MATHEMATICS   **1112/01**

Paper 1   **April 2019**

MARK SCHEME

Maximum Mark: 50
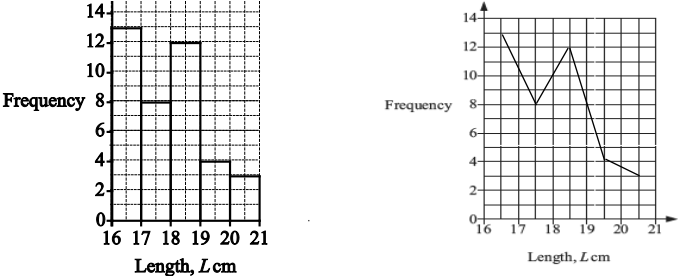
Mark scheme annotations and abbreviations

M1	method mark	
A1	accuracy mark	
B1	independent mark	
FT	follow through after error	
dep	dependent	
oe	or equivalent	
cao	correct answer only	
isw	ignore subsequent working	
soi	seen or implied	

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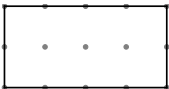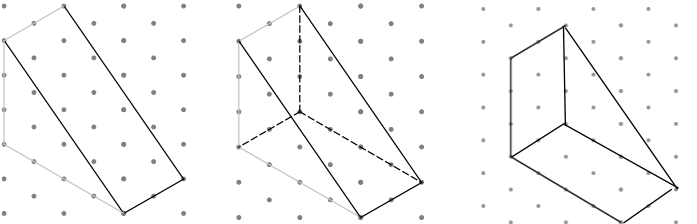
Question	Answer	Mark	Further Information
1	(y =) 5	1	
2	7	1	
3	1.5 (l)	1	Allow 1.5(00) allow $1\frac{1}{2}$ Do not accept 1500 ml
4	375 (g)	1	
5	$\frac{3}{10}$ oe	1	Allow equivalents e.g. 0.3, $\frac{6}{20}, \frac{12}{40}$ as final answer
6	39 (54) 96 123 (297) 418	1	Accept any unambiguous indication. Both correct.
7	$x \rightarrow x^4 - 2$ $x \rightarrow 4(x-2)$ $\boxed{x \rightarrow 4x - 2}$ $x \rightarrow 2 - 4x$	1	Accept any unambiguous indication.
8	3.81	1	
9	12 (days)	1	
10	840 (cm^3)	2	
	7 × 4 × 3 × 10 oe **or** sight of 280 **or** 84 **or** 120 **or** 210	M1	
11	Ticks Rice B **and** gives 150 **and** 125	2	Do **not** award any marks for choice of rice B without a correct explanation. Accept correct explanation if no box is ticked. • With rice B, you get 150 g extra, but with rice A you only get 125 g extra.
	150 **or** 125 seen **or** 625 **and** 900 seen	B1	

Question	Answer	Mark	Further Information
12	Ticks Lily **and** gives correct supporting work e.g. • $11^2 = 121$ or $\sqrt{121}$ is 11 • 121 is closer (to 120 than 100)	1	Do **not** award any marks for choice of Lily without a correct explanation. Accept correct explanation if no box is ticked, provided the decision of Lily being closer is clear.
13	61 (and) 67	1	Must have just these two.
14	Coin *C* ticked	1	Allow any unambiguous indication.
15	÷ × × ÷	2	
	3 correct signs	B1	
16	36(°)	1	
17(a)	2 (hours) 18 (minutes)	1	
17(b)	12:36 (pm)	2	
	sight of 15:10, 15:30, 15:58 or 15:06 **or** 12:36 not as final answer	B1	e.g. circled on table
18(a)	$\dfrac{7}{11}$ cao	1	
18(b)	$\dfrac{5}{49}$ cao	1	Do **not** accept $\dfrac{5}{7^2}$

19(a)	A fully correct frequency diagram:	2	The frequency diagram must be fully correct for 2 marks, i.e. bars must touch and have the correct widths and heights. Accept frequency polygon with values plotted at the midpoints, ignore vertical lines and allow joining or not joining to axes.
	The diagram contains only one error.	M1	Examples of one error are: • having gaps between bars provided bars touch midpoints, • drawing 5 lines rather than 5 bars provided lines are at midpoints, • drawing just midpoints and not joining up (and no other lines), • one incorrect bar height or one incorrect point on the frequency polygon, • consistently using start (or end) of class intervals for a frequency polygon
19(b)	Ticks 'Rajiv is not correct' **and** gives a correct reason, e.g. • It is in $17 \leq L < 18$ • More than half the values are less than 18 (cm). • Less than half the values are 18 (cm) or more.	1	Accept reference to either the 20th or 21st or 20.5th value being the median. Do not accept e.g. 21 values are less than 18, unless there is some indication that it should be half the values. Do not accept any reference to the interval with the 'median frequency'. Do **not** award any marks for choice of correct without a correct explanation. Accept correct explanation if no box is ticked e.g. Rajiv is not correct because it is in $17 \leq L < 18$
20	282	1	

Question	Answer	Mark	Further Information
21	Primary Secondary Primary ✓ Secondary ✓ Secondary ✓	**1**	Allow any unambiguous indication.
22	($) 15	**1**	
23(a)	35	**1**	
23(b)	13 **or** answer to **(a)** – 7 × – 5 and answer to **(b)** is 6 – – 7	**1**	Provided not spoilt by evaluating incorrectly.
24(a)	$5(x – 1) = 2(x + 8)$ **or** $5x – 5 = 2x + 16$	**1**	isw after seeing correct answer.
24(b)	30 (cm)	**2**	<u>If answer in part **(a)** is incorrect</u> Award 2 FT for correctly solving *their* **(a)** (as long as *their* **(a)** is linear) **and** correctly substituting *their x* to find the length of one of the lines.
	$x = 7$ **or** correctly finding the length of the line using *their* 7 **or** correctly solving *their* **(a)** (as long as *their* **(a)** is linear)	B1	Condone an answer of 7 for B1.
25	(3, 10)	**2**	
	One correct coordinate	B1	

Question	Answer	Mark	Further Information
26	$\dfrac{17}{36}$	**3**	Provided 6 and 8 are not incorrect.
	A complete correct sample space diagram <table><tr><td>+</td><td>1</td><td>2</td><td>4</td><td>6</td><td>6</td><td>8</td></tr><tr><td>1</td><td>2</td><td>3</td><td>5</td><td>7</td><td>7</td><td>9</td></tr><tr><td>2</td><td>3</td><td>4</td><td>6</td><td>8</td><td>8</td><td>10</td></tr><tr><td>4</td><td>5</td><td>6</td><td>8</td><td>10</td><td>10</td><td>12</td></tr><tr><td>6</td><td>7</td><td>8</td><td>10</td><td>12</td><td>12</td><td>14</td></tr><tr><td>6</td><td>7</td><td>8</td><td>10</td><td>12</td><td>12</td><td>14</td></tr><tr><td>8</td><td>9</td><td>10</td><td>12</td><td>14</td><td>14</td><td>16</td></tr></table> **or** a complete sample space diagram, with 6 and 8 correct but other errors **and** with correct follow through for probability	B2	
	Identifying 6 **and** 8 (the two missing numbers from the spinner) **or** a complete correct sample space diagram using *their* values (ignoring grey boxes) **or** $\dfrac{\textit{The number of their values over 9}}{36}$ from a complete diagram	B1	Note: may be on spinner or in top row or in first column of table.
27	<table><tr><td>Positive gradient</td><td>Zero gradient</td><td>Negative gradient</td></tr><tr><td>y = 4x + 1</td><td>y = –1</td><td>y = –6x</td></tr><tr><td>y = 3x – 5</td><td></td><td>x + y = 11</td></tr></table>	**2**	Allow correct equivalent rearranged equations.
	2 correctly placed equations	B1	
28(a)	$p = 56(°)$ $q = 20(°)$	**2**	
	One correct value	B1	

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Question	Answer	Mark	Further Information
28(b)	Ticks Not correct **and** gives a correct reason, e.g. • in a kite, two angles are equal • a kite has one pair of equal angles • (BCDE) doesn't have any equal angles • a kite has a line of symmetry • a kite is symmetrical • (BCDE) doesn't have any lines of symmetry • (BCDE) doesn't have two pairs of equal sides.	1	Do **not** accept a reason based measured sides or a reason based on one pair of sides. Others answers are acceptable e.g. • 132 doesn't equal 118 • Angles E and C are not the same But do not allow • E and C are not the same
29(a)		2	Allow any orientation of a 4 cm by 2 cm rectangle. Do not allow internal lines.
	A rectangle with one dimension correct with no internal lines **or** a 2 cm by 4 cm rectangle ignoring internal lines.	B1	
29(b)	 or with some or all hidden lines shown	1	
30	$\dfrac{11}{12}$	2	
	$\dfrac{7}{6}$ oe (finding the difference) **or** $\dfrac{11}{6}$ oe (finding the sum) **or** a value equivalent to $\dfrac{11}{12}$	B1	e.g. $\dfrac{5.5}{6}$

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