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**MATHEMATICS**

**0845/01**

Paper 1

**October 2018**

MARK SCHEME

Maximum Mark: 40

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at an Markers' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the End of Series Report.

Cambridge will not enter into discussions about these mark schemes.

**Mark scheme annotations and abbreviations**

<b>M1</b>	method mark
<b>A1</b>	accuracy mark
<b>B1</b>	independent mark
<b>FT</b>	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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This document consists of **8** printed pages.

Question	Answer	Marks	Further Information																
1	E2	1	Do not accept 2E																
2	166 (magazines)	1																	
3	C B D A	1	Do not accept reverse order. Allow 40°, 90°, 100°, 130° ±1																
4	60 (people)	1																	
5	All 5 numbers correct: <table border="1" style="display: inline-table; vertical-align: middle;"> <tbody> <tr> <td>x</td> <td>3</td> <td>5</td> <td>9</td> </tr> <tr> <td>4</td> <td>12</td> <td>20</td> <td>36</td> </tr> <tr> <td>6</td> <td>18</td> <td>30</td> <td>54</td> </tr> <tr> <td>2</td> <td>6</td> <td>10</td> <td>18</td> </tr> </tbody> </table>	x	3	5	9	4	12	20	36	6	18	30	54	2	6	10	18	2	
x	3	5	9																
4	12	20	36																
6	18	30	54																
2	6	10	18																
6(a)	3 or 4 correct numbers 35	B1																	
6(b)	'No' must be ticked, together with an explanation that the twelfth number in the sequence is even, not odd, for example: <ul style="list-style-type: none"> <li>• 12 x 5 is 60 (which is even or is not odd)</li> <li>• the sequence goes odd, even, odd, even so the twelfth number will be even</li> <li>• odd x even = even</li> <li>• all the even multiples of 5 are even</li> <li>• 60 (is even)</li> <li>• the twelfth number is 60</li> </ul>	1	Do not accept 'No' without a valid explanation.  Accept alternative wording.  Do not accept just 'The twelfth number is even'.  Explanation must be mathematically correct and calculations must relate to 12 x 5 and or 60																

Question	Answer	Marks	Further Information
7	20 (cm)	1	
8	5 (days)	1	Accept a list, or clear indication of: Monday, Tuesday, Wednesday, Saturday, Sunday
9	5.3 + 4.7 <b>or</b> 5.7 + 4.3	1	Numbers can be in either order.
10	(x =) 56 (°)	1	
11	$3\frac{2}{5}$	1	Do not accept 3.4
12	63 (mm)	1	Allow any answer between 61 mm and 65 mm. Do not accept answer in centimetres.
13	6750    700    68    6651    7000	1	Accept alternative, unambiguous indications of the correct answer.
14(a)	isosceles <b>and</b> Explanation that 2 sides are equal <b>or</b> Explanation that 2 angles are equal	1	Do not award the mark for isosceles with no explanation. Allow 'Because it has (only) one line of symmetry.'
14(b)	scalene <b>and</b> Explanation that all sides are different lengths <b>or</b> Explanation that all angles are different sizes	1	Do not award the mark for scalene with no explanation. Allow 'has no line of symmetry'

Question	Answer	Marks	Further Information												
<b>15</b>	225 (grams)	<b>1</b>													
<b>16(a)</b>	They are all square numbers.	<b>1</b>	Accept the mark for recognition that they are all a number multiplied by itself, e.g. $4 \times 4$ , $5 \times 5$ , $6 \times 6$ , $7 \times 7$ , $8 \times 8$ Allow $a \times a = b$ or similar												
<b>16(b)</b>	81	<b>1</b>													
<b>17</b>	<input type="checkbox"/> A <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> B	<b>1</b>	Accept the correct times listed in order: 6:55 7:30 9:10 9:45												
<b>18</b>	<table border="1"> <thead> <tr> <th>IN</th> <th>OUT</th> </tr> </thead> <tbody> <tr> <td>1.5</td> <td>150</td> </tr> <tr> <td><b>9.37</b></td> <td>937</td> </tr> <tr> <td>6.2</td> <td><b>620</b></td> </tr> <tr> <td><b>0.49</b></td> <td>49</td> </tr> <tr> <td>0.07</td> <td><b>7</b></td> </tr> </tbody> </table>	IN	OUT	1.5	150	<b>9.37</b>	937	6.2	<b>620</b>	<b>0.49</b>	49	0.07	<b>7</b>	<b>2</b>	All 4 numbers correct.
IN	OUT														
1.5	150														
<b>9.37</b>	937														
6.2	<b>620</b>														
<b>0.49</b>	49														
0.07	<b>7</b>														
	2 or 3 numbers correct	B1													
<b>19</b>	(\$)198 oe	<b>1</b>													

Question	Answer	Marks	Further Information
<b>20(a)</b>	19 (cents)	<b>1</b>	
<b>20(b)</b>	<p>Apple ticked, together with calculations showing that an orange costs less than an apple, for example:</p> <ul style="list-style-type: none"> <li>• <math>88 \div 5 = 17r3</math> which is less than 19</li> <li>• <math>88 \div 5 = 17.6</math> which is less than 19</li> <li>• <math>19 \times 5 = 95</math> cents which is more than 88 cents</li> </ul> <p><b>or</b></p> <p>An explanation that the difference in price between 5 oranges and 4 apples is 12 cents which is not enough to buy an apple.</p> <p>If <b>part (a)</b> incorrect with an answer less than 17.6 and calculation for orange in <b>part (b)</b> is correct e.g. <math>88 \div 5 = 17.6</math> then the conclusion that the orange costs more to be marked correct as follow through.</p>	<b>1</b>	Do not award mark for apple ticked without correct justification.
<b>21</b>	17 and 29 or 71 and 29	<b>1</b>	Accept answers in any order
<b>22</b>	0.9	<b>1</b>	
<b>23</b>	25(%)	<b>1</b>	

Question	Answer	Marks	Further Information
24	$\begin{array}{ c c } \hline 1 & 4 \\ \hline 3 & 8 \\ \hline \end{array} + \begin{array}{ c c } \hline 3 & 8 \\ \hline 1 & 4 \\ \hline \end{array}$ <p style="text-align: center;">or</p> $\begin{array}{ c c } \hline 5 & 2 \\ \hline \end{array}$ <p style="text-align: center;">or</p> $\begin{array}{ c c } \hline 1 & 8 \\ \hline 3 & 4 \\ \hline \end{array} + \begin{array}{ c c } \hline 3 & 4 \\ \hline 1 & 8 \\ \hline \end{array}$ <p style="text-align: center;">or</p> $\begin{array}{ c c } \hline 5 & 2 \\ \hline \end{array}$	1	
25(a)	Even (chance)	1	Accept fifty-fifty, 50%, $\frac{3}{6}$ , $\frac{1}{2}$ or equivalent fractions.
25(b)	Impossible or No chance	1	Accept 0 or zero.
26	9	1	

Question	Answer	Marks	Further Information
27	<input type="text" value="(true)"/> <input type="text" value="true"/> <input type="text" value="false"/> <input type="text" value="true"/> <input type="text" value="true"/>	2	All entries must be correct for the award of 2 marks. Accept any unambiguous indication of the correct answer.
Any three correct entries.		B1	

Question	Answer	Marks	Further Information																
28	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%;">Number who walk to school</th> <th style="width: 20%;">Number who do not walk to school</th> <th style="width: 30%;">Total</th> </tr> </thead> <tbody> <tr> <td>Number of Boys</td> <td style="text-align: center;">9</td> <td style="text-align: center;">6</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Number of Girls</td> <td style="text-align: center;">3</td> <td style="text-align: center;">12</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">12</td> <td style="text-align: center;">18</td> <td style="text-align: center;">30</td> </tr> </tbody> </table>		Number who walk to school	Number who do not walk to school	Total	Number of Boys	9	6	15	Number of Girls	3	12	15	Total	12	18	30	2	All 6 boxes correct.
	Number who walk to school	Number who do not walk to school	Total																
Number of Boys	9	6	15																
Number of Girls	3	12	15																
Total	12	18	30																
29	<p>3, 4 or 5 boxes correct.</p> <p><b>or</b></p> <p>Either first or second column correct <b>and</b> all columns totaling correctly <b>and</b> correct follow through total for rows E.g.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%;">Number who walk to school</th> <th style="width: 20%;">Number who do not walk to school</th> <th style="width: 30%;">Total</th> </tr> </thead> <tbody> <tr> <td>Number of Boys</td> <td style="text-align: center;">9</td> <td style="text-align: center;">12</td> <td style="text-align: center;">21</td> </tr> <tr> <td>Number of Girls</td> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> <td style="text-align: center;">9</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">12</td> <td style="text-align: center;">18</td> <td style="text-align: center;">30</td> </tr> </tbody> </table>		Number who walk to school	Number who do not walk to school	Total	Number of Boys	9	12	21	Number of Girls	3	6	9	Total	12	18	30	M1	
	Number who walk to school	Number who do not walk to school	Total																
Number of Boys	9	12	21																
Number of Girls	3	6	9																
Total	12	18	30																
30	10.8 (metres)	1																	
31	$\frac{5}{100}$ <b>or</b> 0.05 <b>or</b> five hundredths	1	Do not accept hundredths or $\frac{1}{100}$ Do not accept 5 hundreds. Allow $\frac{1}{20}$																
68		1																	