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**MATHEMATICS**

**0845/02**

Paper 2

**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.

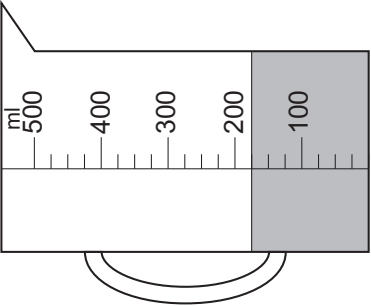
Cambridge will not enter into discussions about these mark schemes.

**Mark scheme annotations and abbreviations**

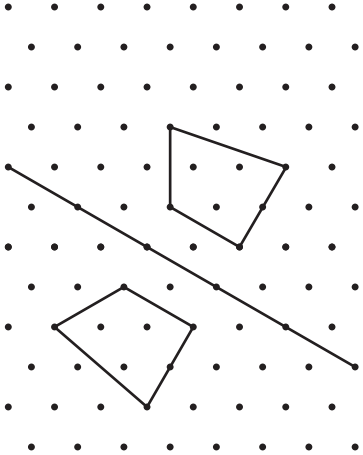
<b>M1</b>	method mark
<b>A1</b>	accuracy mark
<b>B1</b>	independent mark
<b>FT</b>	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

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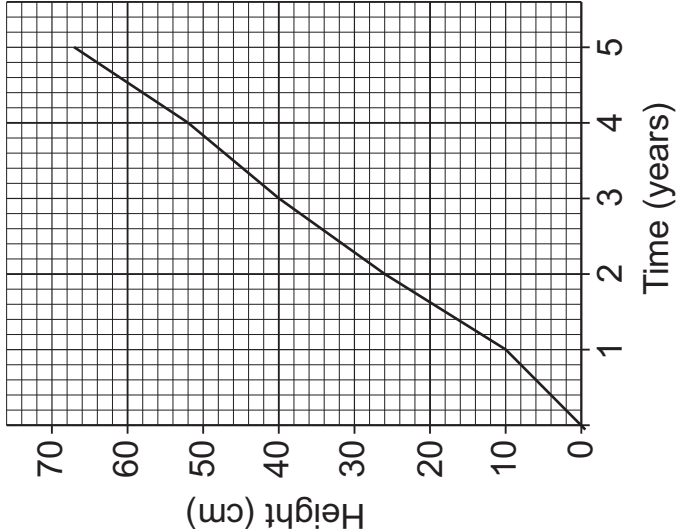
This document consists of **10** printed pages.

Question	Answer	Marks	Further Information
1	$\frac{2}{10} \frac{5}{10} \frac{6}{10} \frac{9}{10}$	1	Allow conversion to decimals.
2	$70 \times 9 = 630$ or $90 \times 7 = 630$	1	
3	4086 and 3686	1	Both numbers must be correct for 1 mark.
4	(Up 3 Right 2) Up 1 Right 4 Down 4 Left 6	1	All four lines must be correct for 1 mark. Allow 1 Up, 4 Right etc.
5(a)		1	Line should pass through the mark for 175 ml. Allow small discrepancy as long as it touches 175 or the part of line drawn extended touches 175.
5(b)	0.225 (l)	1	
6	35 cm    305 cm <u>350 cm</u> 3500 cm	1	Accept any unambiguous indication of the correct answer.

Question	Answer	Marks	Further Information
7	Indicates graph C together with an explanation that the scale on the vertical axis is as long as possible, making it easier to see the difference between the children's heights.	1	<p>Do not accept C without an explanation.</p> <p>Do not accept any facts that are true of all the graphs e.g. Yuri is the biggest.</p> <p>Do not accept just C is more accurate/reliable.</p> <p>Accept explanations relating to:</p> <ul style="list-style-type: none"> <li>• C has bigger differences.</li> <li>• C is more clearly seen.</li> <li>• It has a larger scale.</li> <li>• Do not accept graph C is more accurate, but do accept anything implying graph C can be used/read more accurately.</li> </ul>
8	<p>Division question</p> <p>16 apples are put into bags of 5 How many full bags are there?</p> <p>A minibus holds 10 people. 56 people are going on a trip. How many minibuses are needed?</p> <p>A pumpkin costs \$3 How many can you buy with \$10?</p> <p>35 candles are put into 4 boxes How many boxes are needed to hold them all?</p> <p>Rounding decision</p> <p>round up</p> <p>round down</p>	2	All 4 answers correct.
3 answers correct.		B1	

Question	Answer	Marks	Further Information
<p><b>9</b></p>		<p><b>1</b></p>	<p>The diagram must be sufficiently accurate for the intention to be clear (vertices within 1 mm).</p>
<p><b>10</b></p>	<p>10 (beads)                      6 and 8 seen                      or  <math>24 - (\textit{their} 6)</math> and <math>(\textit{their} 8)</math>                      or                      14                      or  <math>\frac{5}{12}</math> oe or <math>\frac{7}{12}</math> oe</p>	<p><b>2</b></p> <p>B1</p>	
	<p>A correct method containing any number of arithmetic errors:  <math>24 - (\frac{1}{3} \text{ of } 24) - (\frac{1}{4} \text{ of } 24)</math></p>	<p>M1</p>	

Question	Answer	Marks	Further Information
11(a)	$19 \div 3 = 6 \frac{\boxed{1}}{3}$	1	
11(b)	$\boxed{15} \div 4 = 3 \frac{3}{4}$	1	
12	$87 \times 21$ <p>or</p> $21 \times 87$	1	
13		1	<p>The diagram must be sufficiently accurate for the intention to be clear.</p> <p>Allow diagram showing an intermediate position, e.g.</p>

Question	Answer	Marks	Further Information
14(a)	40 (cm)	1	
14(b)	<p>Graph to show the growth of a maple tree</p> 	1	<p>Point plotted at 67 cm for 5<sup>th</sup> year.</p> <p>Allow point between 66 cm and 68 cm exclusive.</p>
15	4.5	1	Accept $4\frac{1}{2}$

Question	Answer	Marks	Further Information						
16	$26 + 54 = \boxed{\phantom{00}} = 100 - 20$ $7 \times 9 < \boxed{\phantom{00}} < 8 \times 8$ $56 \div 7 > \boxed{\phantom{00}} > 76 - 69$	1	All answers must be correct for the award of the mark.						
17	An example such as: <i>18 is a multiple of 3 but it is even</i>	1	Accept sight of any even multiple of 3 Allow explanation that includes the repeat addition of 3						
18	A correct number in each cell: <table border="1"> <tbody> <tr> <td>Less than 50</td> <td>More than 50 Less than 100</td> </tr> <tr> <td>Divisible by 4</td> <td>A multiple of 4 less than 50 e.g. 16</td> </tr> <tr> <td>Divisible by 25</td> <td>75</td> </tr> </tbody> </table> Any 2 or 3 correct answers	Less than 50	More than 50 Less than 100	Divisible by 4	A multiple of 4 less than 50 e.g. 16	Divisible by 25	75	2	Allow more than 1 correct answer in the top two cells.
Less than 50	More than 50 Less than 100								
Divisible by 4	A multiple of 4 less than 50 e.g. 16								
Divisible by 25	75								
		B1							

Question	Answer	Marks	Further Information																														
<p><b>19</b></p>		<p><b>2</b></p>	<p>4 correct answers.</p>																														
<p><b>20</b></p>	<p>2 or 3 correct answers.</p> <table border="1"> <tr> <td>I</td> <td>II</td> <td>III</td> <td>IV</td> <td>V</td> <td>VI</td> <td>VII</td> <td>VIII</td> <td>IX</td> <td>X</td> </tr> <tr> <td>XI</td> <td>XII</td> <td>XIII</td> <td>XIV</td> <td>XV</td> <td>XVI</td> <td>XVII</td> <td>XVIII</td> <td>XIX</td> <td>XX</td> </tr> <tr> <td>XXI</td> <td>XXII</td> <td>XXIII</td> <td>XXIV</td> <td>XXV</td> <td>XXVI</td> <td>XXVII</td> <td>XXVIII</td> <td>XXIX</td> <td>XXX</td> </tr> </table> <p>3 or more numbers correct.</p>	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX	<p>B1</p>	<p>All 6 numbers correct. Missing numbers are: XV XVII XX XXVI XXVIII XXIX</p>
I	II	III	IV	V	VI	VII	VIII	IX	X																								
XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX																								
XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX																								



Question	Answer	Marks	Further Information
21	$\frac{4}{\boxed{5}} = \frac{20}{25}$ $\frac{\boxed{1}}{5} = \frac{24}{120}$	1	Both parts must be correct for the award of the mark.
22		1	Accept an arrow between 7.3 cm and 7.5 cm from 0
23(a)	34	1	
23(b)	35	1	
24(a)	22 (°C)	1	Do not accept -22 (°C)
24(b)	-20 (°C)	1	Do not accept 20- (°C)
25(a)	27 (cm <sup>2</sup> )	1	
25(b)	42 (cm)	1	
26	0.4 and $\frac{2}{5}$	1	Accept any unambiguous indication of the correct answer.

Question	Answer	Marks	Further Information
27	<p>centimetres</p> <p>cm<sup>2</sup></p> <p>metres</p> <p>m<sup>2</sup></p> <p>kilometres</p> <p>km<sup>2</sup></p>	1	All three lines must be correct for 1 mark.
28(a)	9 (hours)	1	
28(b)	13:35 or 1:35 pm	1	Do not accept just 1:35