

2017 national curriculum tests

# Key stage 1

## Mathematics test mark schemes

Paper 1: arithmetic  
and Paper 2: reasoning



Standards  
& Testing  
Agency

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# 1. Introduction

The Standards and Testing Agency (STA) is responsible for the development and delivery of statutory tests and assessments. STA is an executive agency of the Department for Education.

The 2017 test assesses the 2014 national curriculum. The test has been developed to meet the specification set out in the test framework for mathematics at key stage 1. The test frameworks are on the GOV.UK website at [www.gov.uk/government/publications/key-stage-1-mathematics-test-framework](http://www.gov.uk/government/publications/key-stage-1-mathematics-test-framework).

A new test and mark schemes will be produced each year.

The key stage 1 tests will be marked internally within schools to inform teacher assessment.

Scaled score conversion tables are not included in this document. Conversion tables will be produced as part of the standard-setting process. Scaled score conversion tables for the 2017 tests will be published at [www.gov.uk/guidance/scaled-scores-at-key-stage-1](http://www.gov.uk/guidance/scaled-scores-at-key-stage-1) in June 2017.

The mark schemes are provided to use when marking pupils' responses. The pupil examples are based on responses gathered from the test trialling process. It is important when marking to refer to the general marking principles, the exemplars section and the additional guidance, to ensure marking is accurate and consistent.

## 2. Structure of the key stage 1 mathematics test

The key stage 1 mathematics test materials comprise:

- Paper 1: arithmetic (25 marks)
- Paper 2: reasoning (35 marks).

The mathematics test comprises 2 components which are presented to pupils as 2 separate test papers. The first component is an arithmetic paper (Paper 1). The second component (Paper 2) presents a range of mathematical problems. The test is administered on paper.

### 3. Content domain coverage

The 2017 test meets the specification set out in the test framework. Table 1 sets out the areas of the content domain that are assessed in Papers 1 and 2.

The references below are taken from the test framework. A question assessing 2M1, for example, assesses 'compare and order lengths, mass, volume/capacity and record the results using  $>$ ,  $<$  and  $=$ ' and is taken from the year 2 programme of study.

**Table 1: Content domain coverage of the 2017 key stage 1 mathematics test**

Paper 1: arithmetic		Paper 2: reasoning	
Question	Content domain reference	Question	Content domain reference
1	1C2a	1	2C8
2	1N2b/1N1a	2	1N1a/2N2a
3	1C2a	3	2N6
4	2C2b	4	2C8
5	2C1/1C2b	5	2P2
6	2N6/2C1	6	2N2b/2N3
7	2C6	7	2M4b/2M4c
8	2C1/2C2a	8	2C4/2M9
9	2C2b	9	2C6
10	2C2b	10a	2S2b
11	2C3	10b	2S1
12	2C2b/1N1a	11	1M4a/2M4a
13	2N6/2C2b	12	2M2
14	2F1a/1F1a	13	2N2b
15	2C6	14	2C8
16	2C8/2N1	15	2C1/2C3
17	1C4/2C1	16	2M3a/2M9
18	2C6/1N1b	17	2F2
19	2C2b	18	2C4
20	2N6/2C2b	19	2C4
21	2C2b	20	2N4
22	2C6	21	2C8
23	2C3/2C2b	22	1G1a/2G1a
24	2F1a	23	2C3/2C2b
25	2C2b	24	2F1a
		25	2C1/2C3
		26	1F1b
		27	2C7
		28	2C4
		29	2G2b
		30	2C4
		31	2C4

## 4. Explanation of the mark schemes

The marking information for each question is set out in the form of tables (sections 7 and 8).

The '**Qu.**' column on the left-hand side of each table provides a quick reference to the question number and part.

The '**Requirement**' column may include two types of information:

- a statement of the requirements for the award of each mark, with an indication of whether partial credit can be given for a correct method
- examples of some different types of correct answer.

The '**Mark**' column indicates the total number of marks available for each question part.

The '**Additional guidance**' column indicates alternative acceptable answers, and provides details of specific types of answer which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

## 5. General marking guidance

### 5.1 Applying the mark schemes

To help you mark consistently, the most frequent procedural queries are listed along with the action you should take. Unless otherwise specified in the mark scheme, you should apply these guidelines in all cases.

Example responses are also included for the two working mark questions and one other question in Paper 2: reasoning. These should act as your guide when you are marking these questions.

### 5.2 General marking principles

Table 2: General marking principles

Possible issues when marking	
<b>1. The pupil's answer does not closely match any of the examples in the mark scheme.</b>	Those marking the test will use their judgement to decide whether the answer corresponds with details in the 'Requirement' column of the mark scheme. Refer also to the 'Additional guidance' column and to the examples of responses where appropriate.
<b>2. The pupil has answered in a non-standard way.</b>	Pupils may provide evidence in any form as long as its meaning can be understood. Diagrams, symbols or words are acceptable ways to present an answer.
<b>3. The pupil's answer is correct but the wrong working is shown.</b>	Always award the mark for a final response that is correct.
<b>4. No answer is provided in the expected place but the correct answer is given elsewhere.</b>	Where a word or number response is expected, a pupil may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.
<b>5. The correct answer has been crossed (or rubbed) out and not replaced.</b>	You should not award any marks for crossed out answers or working.
<b>6. The answer in the answer box is wrong, but the correct answer is shown in the working.</b>	Give precedence to the response provided in the answer box over any other workings. However, in a 2-mark question, one mark may still be awarded for evidence of a complete, correct method.

Possible issues when marking	
<p><b>7. More than one answer is given.</b></p>	<p>If all provided answers are correct (or a range of answers is given, all of which are correct), a mark will be awarded unless the mark scheme states otherwise. If both correct and incorrect responses are given, no mark will be awarded unless the mark scheme states otherwise.</p>
<p><b>8. There appears to be a misread of numbers that affects the pupil's working.</b></p>	<p>A misread occurs when a pupil misreads a number given in the question and consistently uses a different number that does not alter the original intention or difficulty of the question. For example, if 43 is misread as 48, both numbers may be regarded as comparable in difficulty. However, if 43 is misread as 40 or 45, the misread number may be regarded as making the question easier, depending on the question. For example, <math>26 + 40</math> is easier than <math>26 + 48</math>. The misread of a number will affect the award of marks.</p> <p>No marks are awarded if there is more than one misread in a question or if the mathematics is simplified by the misread.</p> <p>For <b>1-mark</b> questions: no mark is awarded for one or more misreads.</p> <p>For <b>2-mark</b> questions that have a method mark: one mark is awarded if the correct method is correctly implemented with the misread number, provided this does not simplify the mathematics.</p>
<p><b>9. The pupil's answer is numerically equivalent to the answer in the mark scheme.</b></p>	<p>Answers should be given as single values in their simplest form unless the mark scheme states otherwise, e.g. for <math>\square = 12 - 5</math>, the answer <math>4 + 3</math> will not be accepted. Where alternative expressions are acceptable, these will be indicated in the additional guidance column.</p>
<p><b>10. The pupil reverses a digit in their answer.</b></p>	<p>A reversed digit is acceptable if it is clearly recognisable as the digit intended. For example, a reversed 2 must clearly show the characteristics of a 2 rather than a 5.</p> <p>As a further example, where the answer is 61 and the response ɔ1 is given, then this should be awarded the mark.</p> <p>You should make a decision based upon your knowledge of the pupil's writing.</p>

<b>Possible issues when marking</b>	
<b>11. The pupil transposes digits in their answer.</b>	<p>A pupil transposes digits by reversing their order, e.g. 83 instead of 38.</p> <p>For questions where no working is shown, an answer with transposed digits should not be awarded the mark. For example, a response of 16 or 1θ when the answer is 61 should not be marked as correct.</p>
<b>12. The pupil has worked out the answer correctly but then copied the wrong answer into the answer box.</b>	<p>A transcription error can occur when the pupil miscopies the correct answer from the end of their working into the answer box.</p> <p>Give precedence to the answer given in the answer box over any other workings. There may be cases where the incorrect answer is a transcription error, in which case you may check the pupil's intention and decide whether to award the mark.</p>
<b>13. The pupil's answer correctly follows through from earlier incorrect work.</b>	<p>'Follow through' marks for an answer may only be awarded when specifically stated in the mark scheme.</p>

## 6. Internal moderation procedures

We recommend those who are involved in marking the key stage 1 tests undertake moderation activity to ensure marking is consistent across their school.



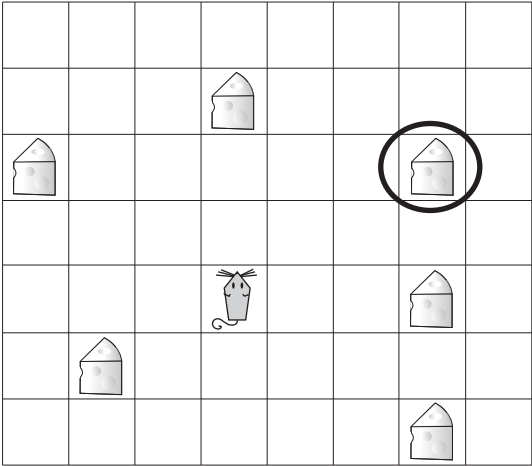
## 7. Mark schemes for Paper 1: arithmetic

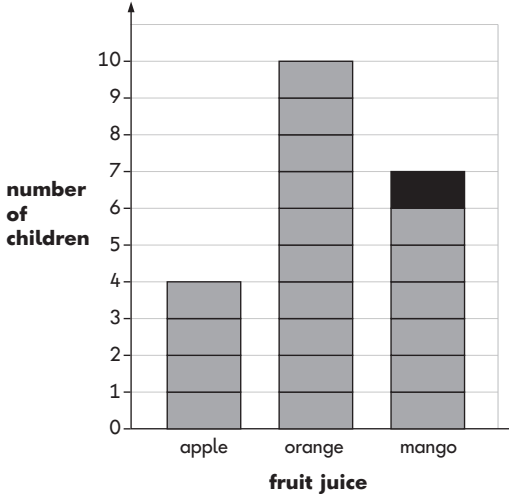
Equivalent answers are **not** acceptable, e.g.  $10 + 4$  instead of 14. When marking the arithmetic questions refer specifically to general marking principles 9, 10, 11 and 12.

Qu.	Requirement	Mark	Additional guidance
P	3	none	Practice question
1	2	1m	
2	100	1m	
3	15	1m	
4	29	1m	
5	13	1m	
6	100	1m	
7	12	1m	
8	10	1m	
9	38	1m	
10	96	1m	
11	50	1m	
12	102	1m	
13	97	1m	
14	7	1m	
15	1	1m	
16	24	1m	
17	7	1m	
18	60	1m	
19	64	1m	
20	32	1m	
21	81	1m	
22	8	1m	
23	48	1m	
24	4	1m	
25	43	1m	

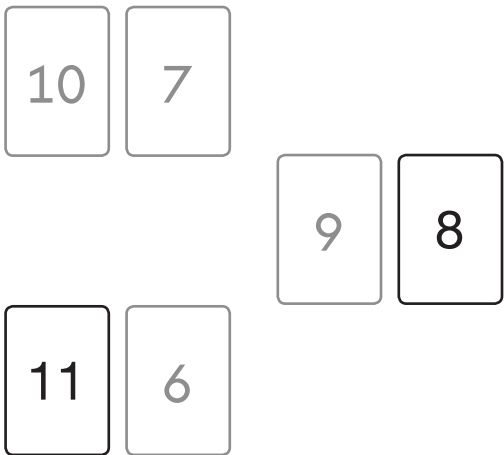
## 8. Mark schemes for Paper 2: reasoning

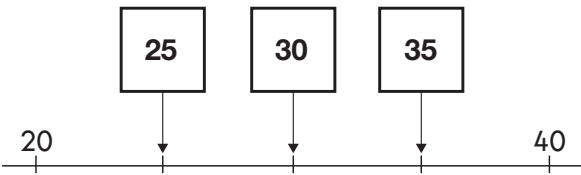
Qu.	Requirement	Mark	Additional guidance
<b>Aural questions</b>			
<b>P</b>	5 (footballs)	<b>none</b>	Practice question
<b>1</b>	40 (p)	<b>1m</b>	<p>Accept any unambiguous indication of the correct amount, e.g.</p> <ul style="list-style-type: none"> <li>£0.40p</li> </ul> <p><b>Do not</b> award the mark for answers where the amount of pounds and/or pence are incorrect, e.g.</p> <ul style="list-style-type: none"> <li>0.40p</li> <li>£40p</li> </ul>
<b>2</b>	<p>The correct number ticked as shown:</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">110</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">1001</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">111</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">101 <input checked="" type="checkbox"/></div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">200</div> </div>	<b>1m</b>	<p>Accept any other clear way of indicating the correct answer.</p> <p><b>Do not</b> award the mark if additional numbers are indicated, unless it is clear the correct number is the pupil's final choice.</p>
<b>3</b>	53 (bean bags)	<b>1m</b>	
<b>4</b>	<p>The correct calculation ticked as shown:</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">5 + 3</div> <div style="border: 1px solid black; padding: 5px;">5 - 3</div> <div style="border: 1px solid black; padding: 5px;">5 + 5</div> <div style="border: 1px solid black; padding: 5px;">5 × 3 <input checked="" type="checkbox"/></div> </div>	<b>1m</b>	<p>Accept any other clear way of indicating the correct calculation, including evaluating <b>only</b> the correct calculation, i.e. writing 15 alongside the correct calculation.</p> <p><b>Do not</b> award the mark if additional calculations have been evaluated or selected, unless it is clear that the correct calculation is the pupil's final choice.</p>

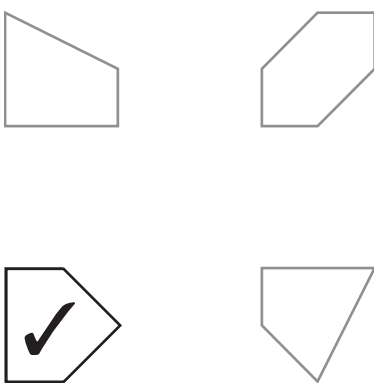
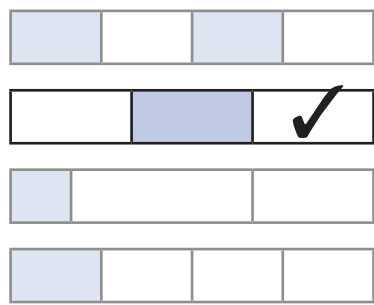
Qu.	Requirement	Mark	Additional guidance										
5	<p>Correct piece of cheese circled as shown:</p> 	1m	<p>Accept any other clear way of indicating the correct answer.</p> <p><b>Do not</b> award the mark if additional pieces of cheese are indicated, unless it is clear that the correct piece of cheese is the pupil's final choice.</p>										
<b>Written questions</b>													
6	<p>Numbers put in the correct order as shown:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">36</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">37</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">63</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">73</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">76</td> </tr> <tr> <td style="text-align: center;"><b>smallest</b></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><b>largest</b></td> </tr> </table>	36	37	63	73	76	<b>smallest</b>				<b>largest</b>	1m	<p>All numbers must be in the correct order for the award of the mark.</p> <p>Accept any other clear way of indicating the correct answer, e.g. matching each number to its correct position.</p> <p>Accept the numbers given in the reverse order, provided the labels have been swapped.</p>
36	37	63	73	76									
<b>smallest</b>				<b>largest</b>									
7	<p>Shortest time circled as shown:</p> <p>70 minutes   <u>10 minutes</u>   45 minutes   1 hour</p>	1m	<p>Accept any other clear way of indicating the correct answer.</p> <p><b>Do not</b> award the mark if additional times are indicated, unless it is clear that the correct time is the pupil's final choice.</p>										
8	(£) 6	1m	<p>Accept any unambiguous indication of the correct amount, e.g.</p> <ul style="list-style-type: none"> <li>• (£)6.00</li> <li>• (£)6.00p</li> </ul> <p><b>Do not</b> award the mark for answers where the amount of pounds and/or pence are incorrect, e.g. (£)600 or (£)600p, unless the £ symbol has been crossed out in the answer box.</p>										

Qu.	Requirement	Mark	Additional guidance
9	Both correct numbers circled as shown:  73      58  64      45	1m	Both numbers must be indicated for the award of the mark.  Accept any other clear way of indicating the two correct numbers.  <b>Do not</b> award the mark if additional numbers are indicated, unless it is clear that the two correct numbers are the pupil's final choice.
10a	6 (children)	1m	Accept inaccuracies in drawing the block as long as the intention is clear, e.g. a mark of any height between 6 and 7 on the vertical axis.  (Use the examples of responses given on pages 20 – 21 to help you determine the award of the mark.)
10b	One block added correctly to the mango column as shown:  	1m	
11	The correct time ticked as shown:  <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">twenty to 6</div> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">half past 9</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">half past 8 ✓</div> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">quarter to 6</div> </div>	1m	Accept any other clear way of indicating the correct answer.  <b>Do not</b> award the mark if additional times are indicated, unless it is clear that the correct time is the pupil's final choice.
12	9 (cm)	1m	Accept any number <b>in the range <math>8\frac{1}{2} - 9\frac{1}{2}</math> inclusive,</b> including decimal equivalents.

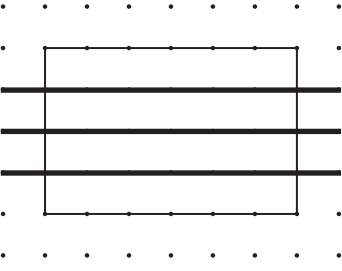
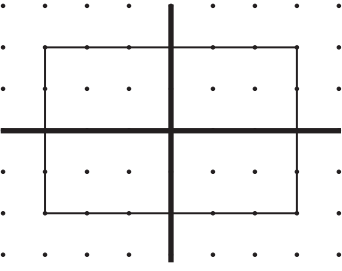
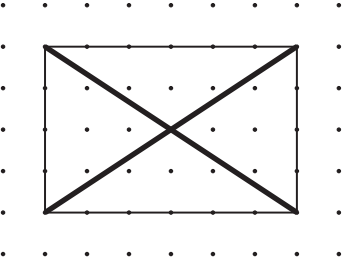
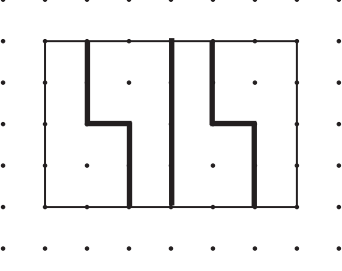
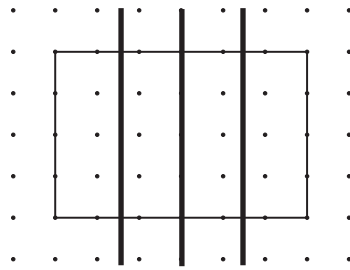
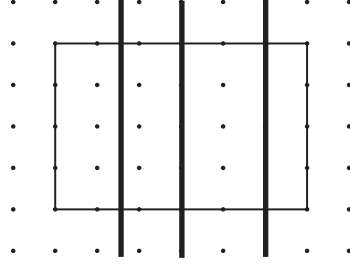
Qu.	Requirement	Mark	Additional guidance
13	<p>Both inequalities completed correctly, using each of the given numbers once only, i.e.</p> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">14</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">0</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">61</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">50</div> </div> <p style="text-align: center; margin: 5px 0;"><b>OR</b></p> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">50</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">14</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">61</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">0</div> </div> <p style="text-align: center; margin: 5px 0;"><b>OR</b></p> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">61</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">50</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">14</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">0</div> </div> <p style="text-align: center; margin: 5px 0;"><b>OR</b></p> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">50</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">0</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">61</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">14</div> </div>	1m	<p>Both inequalities must be correct for the award of the mark.</p> <p><b>Do not</b> award the mark if any number is used more than once, e.g.</p> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">14</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">0</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">50</div> <span style="margin: 0 5px;">&gt;</span> <div style="border: 1px solid black; padding: 5px; margin-left: 10px;">14</div> </div> <p><b>Do not</b> award the mark if numbers not given in the question are used.</p> <p>(Refer to general marking principles 10 and 11 on pages 7 and 8.)</p>
14	5 (bananas)	1m	

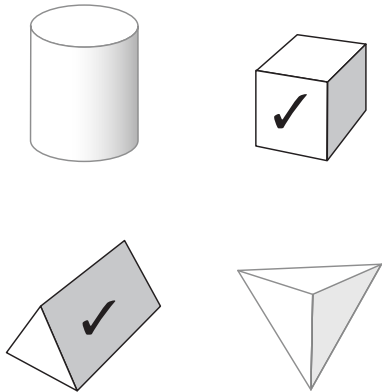
Qu.	Requirement	Mark	Additional guidance
15	Both numbers correct as shown: 	1m	Both numbers must be correct for the award of the mark.
16	80 (p)	1m	<b>Do not</b> award the mark if the correct coins are indicated but their total value of 80p is not given, e.g. 50p, 20p, 10p circled without a total.
17	Correct fraction circled as shown: $\frac{1}{4}$ $\frac{1}{3}$ $\left(\frac{2}{4}\right)$ $\frac{3}{4}$	1m	Accept any other clear way of indicating the correct answer.  <b>Do not</b> award the mark if additional fractions are indicated, unless it is clear the correct fraction is the pupil's final choice.  <b>Do not</b> accept alternative equivalent values written, e.g. the word 'half'.

Qu.	Requirement	Mark	Additional guidance
18	<p>Award <b>TWO</b> marks for the three sums completed correctly using six different numbers, e.g.</p> $\boxed{26} + \boxed{1} = 27$ $\boxed{25} + \boxed{2} = 27$ $\boxed{20} + \boxed{7} = 27$ <p>Award <b>ONE</b> mark for any two sums completed correctly, such that all three calculations are correct but numbers are repeated in two of the calculations <b>or</b> there is an error in one of the calculations, e.g.</p> $\boxed{26} + \boxed{1} = 27$ $\boxed{1} + \boxed{26} = 27$ $\boxed{20} + \boxed{7} = 27$	<p><b>2m</b></p> <p><b>or</b></p> <p><b>1m</b></p>	<p>All three sums must be correct for the award of <b>TWO</b> marks.</p> <p>Accept <math>0 + 27</math> as a correct answer.</p> <p>Any two sums can be correct for the award of <b>ONE</b> mark.</p>
19	61 (cars)	<b>1m</b>	
20	<p>All three numbers correct, as shown:</p> 	<b>1m</b>	If the answer boxes are empty, accept the correct values written in the correct order elsewhere on the page.
21	12 (conkers)	<b>1m</b>	

Qu.	Requirement	Mark	Additional guidance
22	Pentagon ticked as shown: 	1m	Accept any other clear way of indicating the correct shape.  <b>Do not</b> award the mark if additional shapes are indicated, unless it is clear that the correct shape is the pupil's final choice.
23	Calculation completed correctly as shown: $9 + 7 - \boxed{4} = 12$	1m	
24	Correct shape ticked as shown: 	1m	Accept any other clear way of indicating the correct shape.  <b>Do not</b> award the mark if additional shapes are indicated, unless it is clear that the correct shape is the pupil's final choice.
25	Sums completed correctly as shown: $\boxed{3} + \boxed{7} = \boxed{10}$ $\boxed{33} + \boxed{7} = \boxed{40}$ $\boxed{73} + \boxed{7} = \boxed{80}$	1m	Both sums must be completed correctly for the award of the mark.



Qu.	Requirement	Mark	Additional guidance
26	<p>Rectangle divided into four equal parts, e.g.</p>  <p>OR</p>  <p>OR</p>  <p>OR</p> 	1m	<p>Accept slight inaccuracies in drawing lines provided the intention is clear.</p> <p>Accept divisions that do not use dots, provided the lines drawn are reasonably accurate, and the pupil's intention is clear, e.g.</p>  <p><b>Do not</b> award the mark if the rectangle is divided into four unequal parts, e.g.</p> 

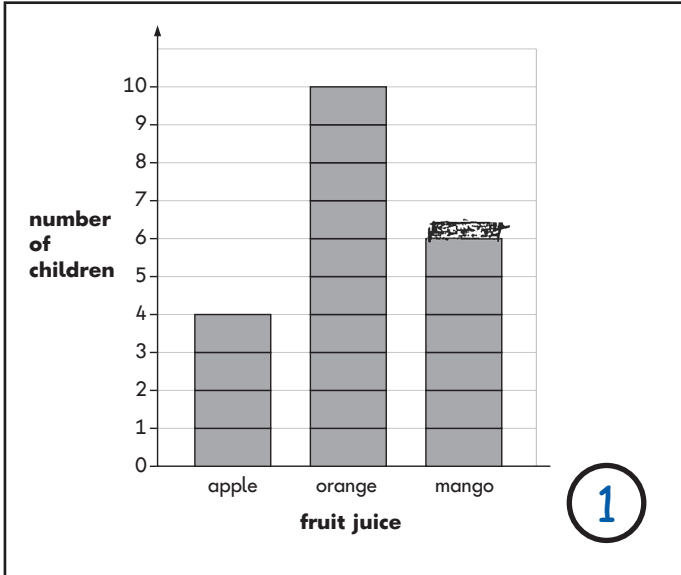
Qu.	Requirement	Mark	Additional guidance
27	<p>A correct number sentence is given, e.g.</p> <ul style="list-style-type: none"> <li><math>6 \times 4 = 24</math></li> <li><math>4 \times 6 = 24</math></li> </ul> <p>Accept other multiplication sentences with the product 24, except <math>1 \times 24</math>, e.g.</p> <ul style="list-style-type: none"> <li><math>2 \times 12 = 24</math></li> <li><math>3 \times 8 = 24</math></li> </ul>	1m	<p>Award the mark even if additional correct or relevant calculations are given along with a correct calculation, e.g.</p> <ul style="list-style-type: none"> <li><math>2 \times 6 = 12</math> <math>2 \times 12 = 24</math></li> </ul> <p>Also accept:</p> <ul style="list-style-type: none"> <li><math>4 \times 6 = 1 \times 24</math></li> <li><math>6 + 6 + 6 + 6 = 1 \times 24</math></li> </ul> <p><b>Do not</b> accept <math>1 \times 24</math> or <math>24 \times 1</math> unless accompanied by an additional correct number sentence.</p> <p><b>Do not</b> accept an incomplete number sentence e.g.</p> <ul style="list-style-type: none"> <li><math>6 \times 4</math></li> <li><math>6 \times 4</math> 24 (missing equals sign)</li> <li><math>6 \times 4 =</math> (missing product)</li> </ul>
28	<p>Award <b>TWO</b> marks for the correct answer of 16 (cakes)</p> <p>If the answer is incorrect or missing, award <b>ONE</b> mark for evidence of a complete, correct method, e.g.</p> <ul style="list-style-type: none"> <li><math>55 - 20 - 19 =</math> (incorrect or no answer)</li> <li><math>20 + 19 = 38</math> (error)</li> <li><math>55 - 38 =</math></li> </ul>	2m or 1m	<p>(Use the examples of responses given on pages 22 – 24 to help you determine how many marks can be awarded.)</p>
29	<p>Both correct shapes ticked as shown:</p> 	1m	<p>Accept any other clear way of indicating the correct shapes.</p> <p><b>Do not</b> award the mark if additional shapes are indicated, unless it is clear that the correct two shapes are the pupil's final choice.</p>

Qu.	Requirement	Mark	Additional guidance
30	<p>Award <b>TWO</b> marks for the correct answer of 59 (cars)</p> <p>If the answer is incorrect or missing, award <b>ONE</b> mark for evidence of a complete, correct method, e.g.</p> <ul style="list-style-type: none"> <li>• <math>76 + 18 - 35 =</math> (incorrect <b>or</b> no answer)</li> <li>• <math>76 + 18 = 95</math> (<i>error</i>) <math>95 - 35 =</math></li> </ul>	<p><b>2m</b></p> <p><b>or</b></p> <p><b>1m</b></p>	(Use the examples of responses given on pages 25 – 26 to help you determine how many marks can be awarded.)
31	45 (g)	<b>1m</b>	

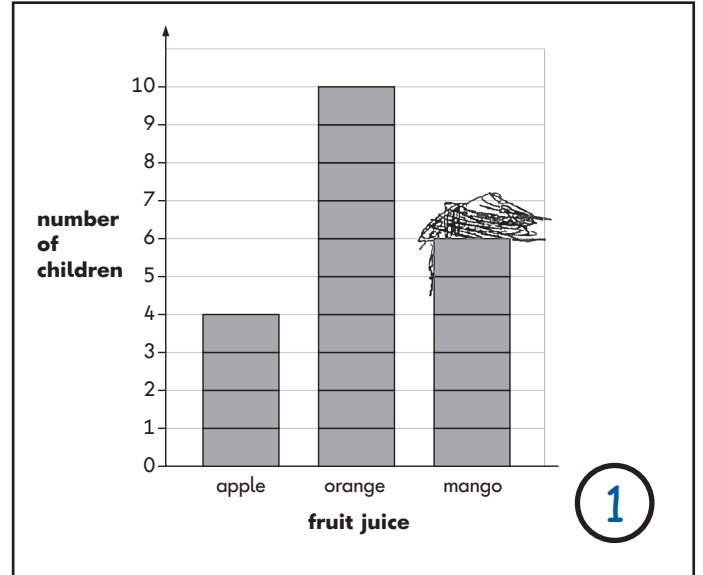
## 9. Example responses

### 9.1 Examples of responses from question 10b

Dan: 1 mark

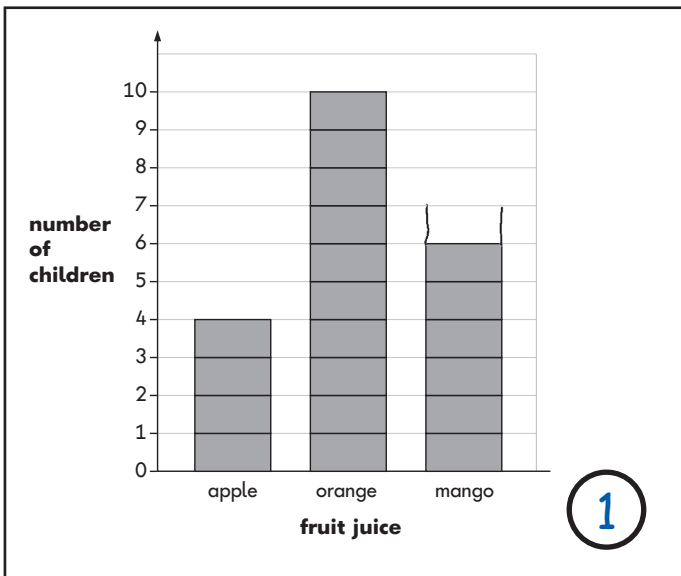


Katrina: 1 mark

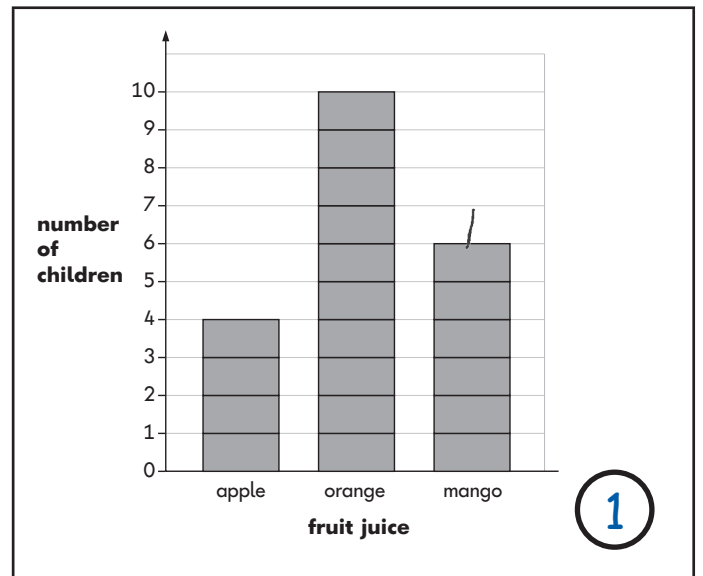


Dan and Katrina are both awarded a mark for their constructed response. Dan has indicated that he knows that one more must be added to the mango blocks. Similarly, Katrina has unambiguously indicated that one more block is required even though it slightly goes over the 7 on the vertical axis; she also can be awarded the mark.

Samantha: 1 mark



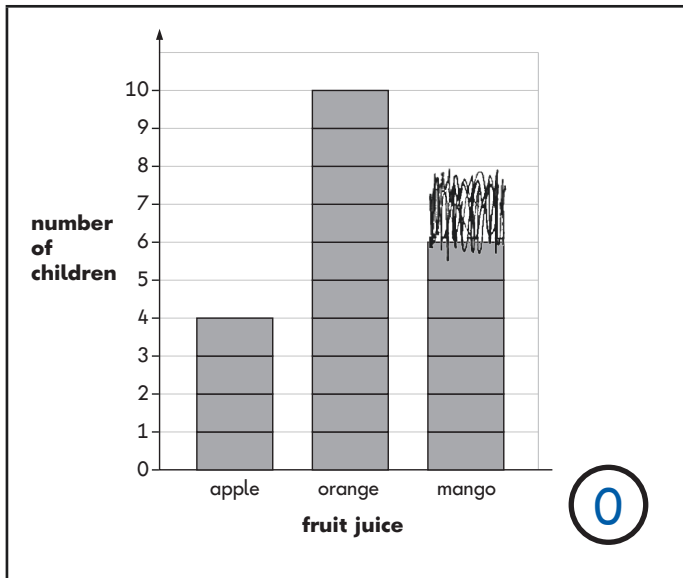
Tyler: 1 mark



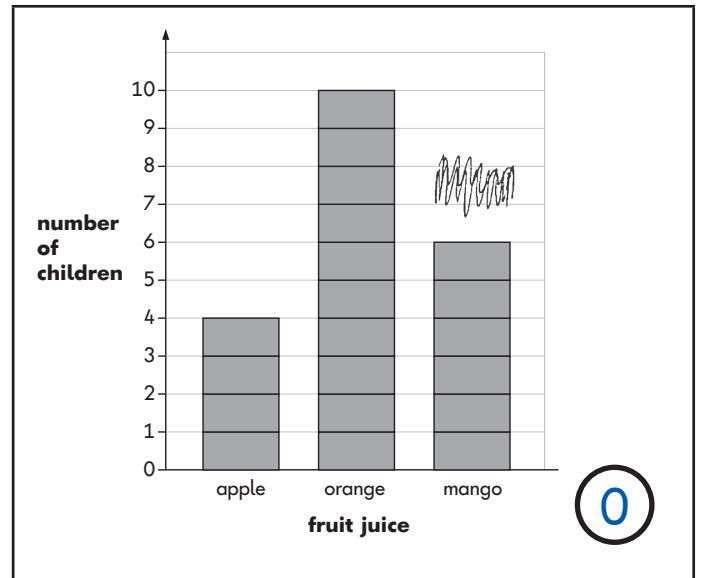
Samantha and Tyler each have been awarded the mark for their responses as they have both indicated in an unambiguous way that one more has to be added to the mango blocks.

## 9.1 Examples of responses from question 10b (continued)

David: 0 marks



Sarah: 0 marks



David and Sarah are not awarded the marks for their responses. David has clearly indicated two blocks instead of one block, whereas Sarah's response is ambiguous in that she has not added the information correctly to the chart.

## 9.2 Examples of responses from question 28

Joel: 2 marks

Show your working

$$55 - 40 = 15$$

$$15 + 1 = 16$$

61 cakes

2

Rabina: 1 mark

Show your working

$$55 - 20 = 35$$

$$35 - 10 = 25$$

$$25 - 10 = 15$$

61 cakes

1

Both Joel and Rabina have given 61 as their final answer. Joel has provided a correct written method for subtracting 39. He shows the correct answer 16 at the end of his working, but he has made a transcription error in the answer box. Since it can be clearly seen that 16 was his intended answer, he is awarded **two marks**. In contrast, although Rabina has a complete, correct method we do not know that 16 was her intended answer. Consequently she can only be awarded **one mark** for a correct method.

Suzanne: 1 mark

Show your working

$$55 - 20 = 30$$

$$30 - 9 = 21$$

21 cakes

1

Elijah: 0 marks

Show your working

$$55 - 20 = 35$$

$$55 - 19 = 26$$

9 cakes

0

Suzanne and Elijah have used written methods to solve the problem. Although Suzanne has made two arithmetic errors, her method is complete; she subtracted 20 from 55, and subtracted 19 from the result. Therefore she is awarded **one mark** for a complete, correct method. In contrast, Elijah has subtracted both 20 and 19, but he subtracted each of the numbers in turn from 55. Although he has evaluated each of his subtractions correctly, he has not shown a correct method. **No marks** can be awarded.

### 9.2 Examples of responses from question 28 (continued)

**Max: 1 mark**

Handwritten work for Max:  $20 + 19 = 39$   
 $39 + \boxed{6} = 55$   
 A tens frame diagram with 39 dots and a vertical line. The number 55 is written above the frame. A box contains the number 6 and the word 'cakes'. A circle with the number 1 is next to the box.

**Stacey: 0 marks**

Handwritten work for Stacey:  $20 + 19 = 39$   
 $39 + \square$   
 A box contains the number 11 and the word 'cakes'. A circle with the number 0 is next to the box.

Max and Stacey have both completed their first calculation correctly:  $20 + 19 = 39$ . They have both attempted a 'counting on' method for their second calculation. Max has shown that he intended to count on to 55. However, he has made an arithmetic error by only counting on 6 instead of 16. Therefore he is awarded **one mark** for a complete, correct method. In contrast, whilst completing her second step, Stacey did not specify the number she intended to count on to, so her method is incomplete. As a result she is awarded **no marks**.

**Elena: 1 mark**

Handwritten work for Elena: A grid of 55 circles. The first 20 circles are crossed out. The remaining 35 circles are grouped into 7 groups of 5. A box contains the number 14 and the word 'cakes'. A circle with the number 1 is next to the box.

**Aidan: 0 marks**

Handwritten work for Aidan: A grid of 50 circles. The first 20 circles are crossed out. The remaining 30 circles are grouped into 6 groups of 5. A box contains the number 11 and the word 'cakes'. A circle with the number 0 is next to the box.

Elena and Aidan used a pictorial method to solve the problem. Elena has correctly drawn 55 circles to represent the total number of cakes, and has proceeded to cross off 20 and 19. When obtaining her final answer she made a counting error. She can be awarded **one mark** for her correct method. Aidan, unlike Elena, has only drawn 50 circles, not 55. He then proceeded to cross off 20 and 19 accurately. However, he cannot be awarded the method mark because he did not use the number 55 as his starting point, so his method is incorrect and **no marks** are awarded.

## 9.2 Examples of responses from question 28 (continued)

Marius: 1 mark

Show your working

So I took away the 20 From 55 and I was up with (35) and I took away 19 and I was left with 17

17 cakes

1

Aisha: 0 marks

Show your working

I took away from 55

15 cakes

0

Marius has explained his method fully in words; he has subtracted 20 from 55 providing the correct answer of 35. He then explains that he subtracted 19 from 35, but at this stage he has made an arithmetic error providing the incorrect answer of 17. Even though his final answer is incorrect, he has shown a complete, correct method and therefore is awarded **one mark**. Aisha has also explained her method in words but has not explained which numbers she took from 55 to get to her answer of 15. Therefore **no marks** are awarded.



## 9.3 Examples of responses from question 30

James: 2 marks

Show your working

$$94 - 35 = 59$$

$$76 + 18 = 94$$

cars **2**

Anita: 1 mark

Show your working

$$76 - 35 = 11$$

$$11 + 18 = 29$$

cars **1**

James has arrived at the correct answer of 59. He is awarded **two marks** because he has clearly used the answer to  $76 + 18 = 94$  in his second calculation to obtain his final answer. We can therefore assume that 59 is his final answer. In comparison, although Anita has a complete, correct method, she has made an arithmetic error in her first calculation and carried it through in the second, obtaining the incorrect answer 29. Because she has a complete, correct method, she is awarded **one mark**.

Kelly: 1 mark

Show your working

$$76 + 10 + 8 = 95$$

$$95 - 30 - 5 = 60$$

cars **1**

Dominic: 0 marks

Show your working

$$70 + 10 = 80$$

$$8 + 8 = 14$$

$$80 + 14 = 94$$

$$94 - 30 = 60$$

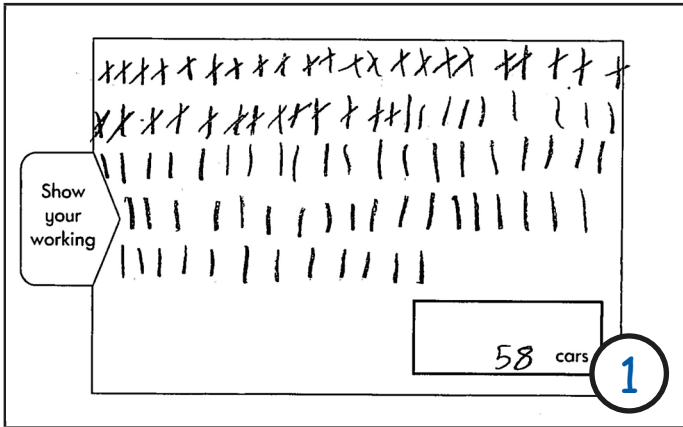
$$60 - 5 = 55$$

cars **0**

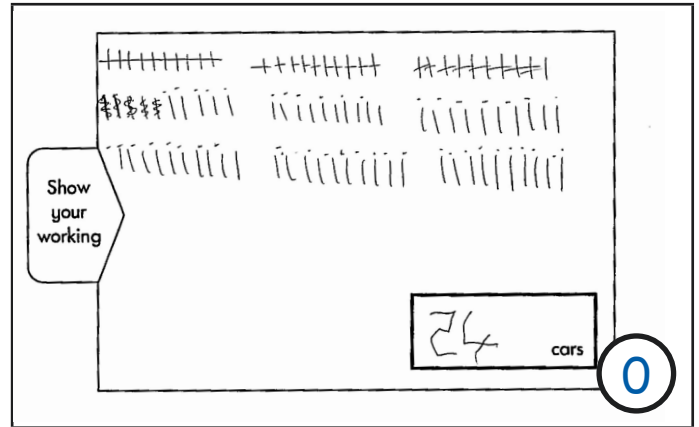
Kelly and Dominic have used partitioning to solve the problem. Although Kelly has made an arithmetic error in completing her first step,  $76 + 10 + 8 = 95$ , she has followed it through and completed the method correctly, so she can be awarded **one mark** for her method. In contrast, Dominic partitions to add  $76 + 18$  and has a correct total, 94. He then partitions 35 to subtract it, but does not show that 35 must be subtracted from his total of 94. His method is not complete and **no marks** are awarded.

### 9.3 Examples of responses from question 30 (continued)

Sean: 1 mark

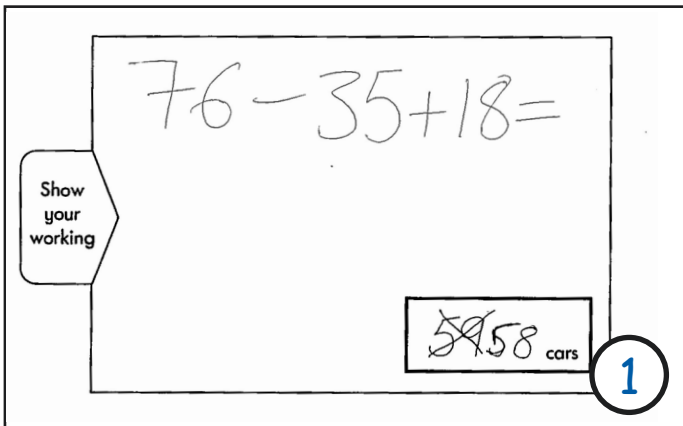


Daisy: 0 marks

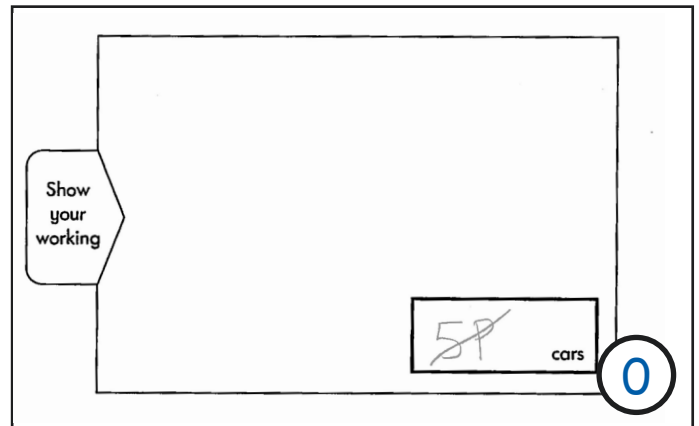


Sean's diagram is correct in that it contains 94 tallies, which indicates  $76 + 18$ . Next, he subtracted 35 correctly by crossing them off. However, he has made an error when counting the remaining tallies. He is awarded **one mark** for his complete, correct method. Daisy, in comparison, has also used a pictorial method, but has only drawn 90 tallies instead of 94. She has crossed off 35 of these tallies accurately. However, because she drew only 90 tallies at the start, we cannot be sure of her first step and must consider her method incorrect. Therefore, Daisy is awarded **no marks**.

Mia: 1 mark



Anton: 0 marks



Mia has shown a complete, correct method. She has written the correct answer in the answer box, but has crossed it out and replaced it with the incorrect answer 58. Consequently she can only be awarded **one mark** for her method. Anton has also written the correct answer of 59 and then crossed it out. Because he has crossed it out, we must ignore it. Since he has not shown his method, **no marks** are awarded.

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