

2019 Maths Arithmetic Paper Mark Scheme

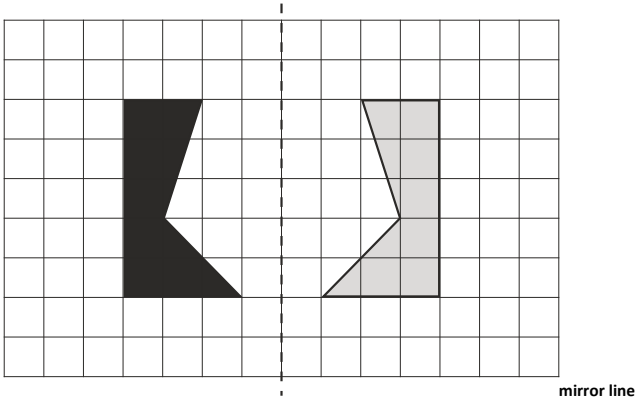
Note that the questions in this paper have been rearranged by year group. In the table below, the first column donates the position in this paper, whereas the second column shows where the question was positioned in the original test paper.

Question Number	Original question number	Domain	Answer(s)	Marks
1	3	3N3	20	1m
2	4	3C4/3C1	336	1m
3	11	3C2	22 Do not accept -22	1m
4	12	3C4/3C1	8	1m
5	1	4N3a	6,090	1m
6	2	4C2	8,357	1m
7	5	4C7	369	1m
8	7	4C6b	60	1m
9	8	4C6a	10	1m
10	9	4C6b	0	1m
11	13	4C6b	110	1m
12	19	4F8	4.75	1m
13	21	4F8	7.1	1m
14	6	5F8	8.993	1m
15	10	5C6a	13	1m
16	16	5C5d	27	1m
17	17	5C6b	101,000	1m
18	34	5F5	17 $\frac{1}{2}$ or equivalent (e.g. 70/4, 35/2, or 17.5)	1m
19	35	5F5	450	1m
20	14	6F9a	253.4	1m
21	15	6C9	10	1m
22	18	6R2	600 Do not accept 600%	1m
23	20	6F9a	0.009	1m
24	22	6F4	$\frac{6}{7}$ (or equivalent)	1m
25	23	6C7a	22,572 If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error	2m
26	24	6F4	19/20 (or equivalent, including 0.95)	1m
27	25	6C7b	24 If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error	2m
28	26	6F4	3 $\frac{3}{10}$ (or equivalent, including 33/10 or 3.3)	1m
29	27	6R2	112	1m

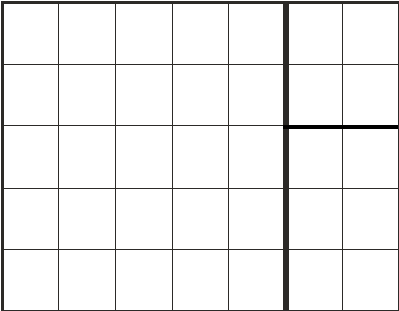
			Do not accept 112%	
30	28	6F4	$\frac{23}{36}$ (or equivalent)	1m
31	29	6R2	459 Do not accept 459%	1m
32	30	6C7a	215,016 If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error	2m
33	31	6F5b	$\frac{2}{9}$ (or equivalent)	1m
34	32	6F4	$1\frac{3}{4}$ (or equivalent, including 7/8, or 1.75)	1m
35	33	6R2	162 Do not accept 162%	1m
36	36	6C7b	97 If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error	2m

2019 Maths Paper 2: Reasoning Mark Scheme

Note that the questions in this paper have been rearranged by year group. In the table below, the first column donates the position in this paper, whereas the second column shows where the question was positioned in the original test paper.

Question Number	Original question number	Domain	Answer(s)	Marks								
1	1	3C6	Award one mark for all three correct answers: $4 \times 8 = \mathbf{32}$, $3 \times 7 = 21$, $4 \times 3 = \mathbf{12}$	1m								
2	7	3M2c	2.5 or $2\frac{1}{2}$	1m								
3	2	4N2b	8,072	1m								
4	6	4F1/3C8	10	1m								
5a	11a	4F6a	0.25	1m								
5b	11b	4M9/3M9a	65(p) OR (£)0.65	1m								
6	4	5P2	Diagram completed, as shown: 	1m								
7	9	4C3/5C7b	Award TWO marks for the correct answer of 124 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $953 - 85 = 868$ $868 \div 7$	2m								
8	12	5F6b/5F6a	Both symbols correct, as shown: $\frac{7}{10}$ 0.07 <input type="text" value=">"/> $\frac{23}{1000}$ <input type="text" value="<"/> 0.23	1m								
9	14	5N4	Award TWO marks for the correct completion of the three numbers in the table, as shown: <table border="1" data-bbox="624 1727 1043 2033"> <tr> <td></td> <td>Round 39,476</td> </tr> <tr> <td>to the nearest 10,000</td> <td>40,000</td> </tr> <tr> <td>to the nearest 1,000</td> <td>39,000</td> </tr> <tr> <td>to the nearest 100</td> <td>39,500</td> </tr> </table> If the answer is incorrect, award ONE mark for any two of the numbers rounded correctly.		Round 39,476	to the nearest 10,000	40,000	to the nearest 1,000	39,000	to the nearest 100	39,500	Up to 2m
	Round 39,476											
to the nearest 10,000	40,000											
to the nearest 1,000	39,000											
to the nearest 100	39,500											

10	15	5F12/5S1	25	1m
11	18	5C5c	<p>Award ONE mark for a correct explanation of why the 95 AND 87 are NOT prime, e.g.</p> <ul style="list-style-type: none"> 87 is divisible by 3 and/or 29 AND 95 is divisible by 5 and/or 19 87 is in the 3 times table AND 95 is in the 5 times table 95 is divisible by five because every number in the five times table ends in five or zero. 87 is divisible by three because 9 is in the three times table so is ninety. Ninety minus three is 87 $8 + 7 = 15$ and 15 is divisible by 3 AND 95 is divisible by 5 	1m
12	22a	5S2/3F1b	2/5 (or equivalent)	1m
13	3	6N2	<p>Award ONE mark for the four numbers matched correctly, as shown:</p>	1m
14	5	5C1/6A3	<p>Award TWO marks for three correct numbers, as shown:</p> <p><input type="text" value="110"/> 155 200 245 <input type="text" value="290"/> <input type="text" value="335"/></p> <p>Award ONE mark for:</p> <ul style="list-style-type: none"> any two numbers correctly placed <p>OR</p> <ul style="list-style-type: none"> if box 1 is correct, accept correct follow-through for box 3 from the incorrect value in box 2. 	Up to 2m
15a	8a	6A3	<p>11 written in the first box, as shown:</p> <p><input type="text" value="11"/> <input type="text" value="25"/> <input type="text" value="53"/></p>	1m
15b	8b	6A3	<p>109 written in the last box, as shown:</p> <p><input type="text" value="25"/> <input type="text" value="53"/> <input type="text" value="109"/></p>	1m
16	10	6A2/6C9	<p>Second box only ticked correctly, as shown:</p> <p>number of tickets $\times 24 + 3$ <input checked="" type="checkbox"/></p>	1m
17	13	6G3a	<p>Award TWO marks for a completed triangle that has all of the following three points:</p> <ul style="list-style-type: none"> an angle in the range 33° to 37° inclusive for the angle marked 35° an angle in the range 88° to 92° inclusive for the right angle 	Up to 2m

			<ul style="list-style-type: none"> the triangle has been drawn on an 8cm line (either on the given line or a line drawn), provided they have constructed both angles within the tolerance of the line 7.9cm to 8.1cm. <p>If the answer is incorrect, award ONE mark for a completed triangle and two of the three points correct.</p>	
18	16	6C9	4	1m
19	17	6M7a/5M7b	<p>Award TWO marks for the correct answer of 144</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method</p>	2m
20	19	6R1/6M5	<p>Award TWO marks for the correct answer of 3.75</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method</p>	2m
21	20	6F11	<p>Award TWO marks for two boxes ticked correctly, as shown:</p> <p style="text-align: center;"> $\frac{1}{20}$ <input type="checkbox"/> $\frac{20}{40}$ <input type="checkbox"/> $\frac{1}{5}$ <input checked="" type="checkbox"/> $\frac{3}{15}$ <input checked="" type="checkbox"/> $\frac{2}{100}$ <input type="checkbox"/> </p> <p>If the answer is incorrect, award ONE mark for:</p> <ul style="list-style-type: none"> only one box ticked correctly and no incorrect boxes ticked two boxes ticked correctly and one incorrect box ticked. 	Up to 2m
22	21	6G3a/5C5d	<p>Rectangle divided, as shown or equivalent reflection:</p> 	1m
23	22b	6S3/5F10	<p>Award TWO marks for the correct answer of 10.7</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> $8.1 + 9.3 + 11.9 + 11.8 + 12.4 = 53.5$ $53.5 \div 5$ 	Up to 2m
24	23	6M8a/6C8	<p>720</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p>	2m

			<ul style="list-style-type: none">• $3 \times 4 \times 6 = 72$ $8 \times 9 \times 11 = 792$ $792 - 72 =$ <p>Award ONE mark for sight of 792</p>	
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2019 Maths Paper 3: Reasoning 2 Mark Scheme

Note that the questions in this paper have been rearranged by year group. In the table below, the first column donates the position in this paper, whereas the second column shows where the question was positioned in the original test paper.

Question Number	Original question number	Domain	Answer(s)	Marks										
1	5	3C4/3N3	Addition completed, as shown <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>1</td><td>2</td><td>8</td> <td>+</td> <td>7</td><td>2</td> <td>=</td> <td>2</td><td>0</td><td>0</td> </tr> </table>	1	2	8	+	7	2	=	2	0	0	1m
1	2	8	+	7	2	=	2	0	0					
2	14	3M4e	91	1m										
3	1	4N2b/3N2b	£7,899	1m										
4	6	4F10b/4M9	Award TWO marks for the correct answer of £6.87 If the answer is incorrect, award ONE mark for evidence of an appropriate method.	2m										
5	7a	3M1b/4S2	155	1m										
6	8	4C4/4C2	Award TWO marks for the correct answer of 1,356 If the answer is incorrect, award ONE mark for evidence of an appropriate method.	Up to 2m										
7	9	4S2/4N4a	2,250	1m										
8	13	4G4	An explanation that includes a correct counter example, e.g. When you double 10° it is not obtuse, or $2 \times 27^\circ = 54^\circ$, or Double 45° is a right angle not obtuse. Or An explanation that demonstrates where the statement in the question is not correct, e.g. If the acute angle is less than 45° then doubling it will be less than 90° , so it won't be obtuse (more than 90°).	1m										
9	4	5F8/3M1b	Masses in correct order, as shown: <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>0.009 kg</td> <td>0.99 kg</td> <td>1.025 kg</td> <td>1.25 kg</td> </tr> </table> lightest	0.009 kg	0.99 kg	1.025 kg	1.25 kg	1m						
0.009 kg	0.99 kg	1.025 kg	1.25 kg											
10	7b	5S1	Table completed with three correct numbers, as shown: <table border="1" style="display: inline-table; vertical-align: middle;"> <thead> <tr> <th>Mass in g</th> <th>Number of kittens</th> </tr> </thead> <tbody> <tr> <td>250–299</td> <td>2</td> </tr> <tr> <td>300–349</td> <td>3</td> </tr> <tr> <td>350–399</td> <td>2</td> </tr> <tr> <td>400–449</td> <td>1</td> </tr> </tbody> </table>	Mass in g	Number of kittens	250–299	2	300–349	3	350–399	2	400–449	1	1m
Mass in g	Number of kittens													
250–299	2													
300–349	3													
350–399	2													
400–449	1													
11	16	5M9c/5M9a	Award TWO marks for the correct answer of £1.85.	Up to 2m										

			If the answer is incorrect, award ONE mark for evidence of an appropriate method.	
12	18	5F3	<p>Award TWO marks for three boxes ticked correctly:</p> <p>$\frac{1}{2}$ <input checked="" type="checkbox"/></p> <p>$\frac{2}{8}$ <input checked="" type="checkbox"/></p> <p>$\frac{3}{4}$ <input type="checkbox"/></p> <p>$\frac{7}{16}$ <input checked="" type="checkbox"/></p> <p>$\frac{24}{32}$ <input type="checkbox"/></p> <p>Award ONE mark for:</p> <ul style="list-style-type: none"> only two boxes ticked correctly and no incorrect boxes ticked <p>OR</p> <p>three boxes ticked correctly and one incorrect box ticked.</p>	Up to 2m
13a	21a	5G2a/4P3a	B is (55, 30)	1m
13b	21b	5G2a/4P3a	<p>D is (55, 14)</p> <p>If B and D are incorrect, ONE mark may be given for the correct y coordinate for both B and D and the same x coordinate (incorrect) for both points, i.e. D is (same x as B, 14)</p>	1m
14a	2a	6N3	7	1m
14b	2b	6N4	4,000,000	1m
15	3	6A1	<p>Award ONE mark for the correct box ticked, as shown:</p> <p>$10 - a$ <input checked="" type="checkbox"/> a</p>	1m
16a	10a	6P3/4P3b	<p>Quadrilateral completed, as shown:</p>	1m
16b	10b	6P2/5P2	Quadrilateral translated correctly, as shown:	1m

17	11	6C5	<p>Award two marks for all four numbers correctly placed each time, or award one mark for three numbers correctly placed each time.</p> <p>Number 3 = prime, factor of 12, factor of 15 Number 4 = factor of 12 Number 5 = prime, factor of 15 Number 6 = factor of 12</p>	Up to 2m
18	12	6R3/5M9b	<p>Award ONE mark for two correct answers, as shown:</p> <p>length = <input type="text" value="19 cm"/></p> <p>width = <input type="text" value="9.1 cm"/></p>	1m
19	15	6M6/6R1	400	1m
20	17	6A4	<p>Award ONE mark for any pair of whole numbers less than 10 that satisfy the equation, i.e. $x = 8$ AND $y = 6$</p> <p>OR</p> <p>$x = 6$ AND $y = 7$</p> <p>OR</p> <p>$x = 4$ AND $y = 8$</p> <p>OR</p> <p>$x = 2$ AND $y = 9$</p>	1m
21	19	6C8	<p>Award THREE marks for the correct answer of 7,174</p> <p>If the answer is incorrect, award TWO marks for evidence of an appropriate complete method which contains no more than one arithmetic error.</p> <p>Award ONE mark for evidence of an appropriate method with more than one arithmetic error.</p> <p>OR</p> <ul style="list-style-type: none"> sight of 3,604 as evidence of long multiplication step (68×53) completed correctly. 	Up to 3m

			<p>OR</p> <p>sight of 3,570 as evidence of long multiplication step (105×34) completed correctly.</p>	
22	20	6C7b/6C8	<p>Award TWO marks for the correct answer of 29</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method.</p>	Up to 2m
23	22	6G2a/5G2a	10.5 (cm)	1m
24	23	6R1	<p>An explanation that gives the correct values for PQ and/or QR, e.g. PQ = 640m, or QR is 160, 160 times 4 is not 600m.</p> <p>OR</p> <p>An explanation recognising PR is 800m and must be 5 times QR</p> <p>OR</p> <p>An explanation that PQ is not 600m, e.g. if it was 600m then the shorter distance would be 200m if added to make 800m, 600m is 3 times 200, not 4 times.</p>	1m