

End of Key Stage 2

PiXL Assessments

Mathematics

Papers 1, 2 and 3: Mark Scheme

Mathematics Paper 1: Mark Scheme

Paper 1 - Arithmetic (out of 40 marks)

Question NC ref code	Requirement	Mark	Additional guidance
1 3N2b	91	1m	
2 3C2	1,447	1m	
3 4F4	$\frac{9}{5}$	1m	Accept $1\frac{4}{5}$
4 4C6b	48	1m	
5 4C2	3,059	1m	
6 5F10	8.821	1m	
7 4C2	6,600	1m	
8 4C7	2,250	1m	
9 4C6a	12	1m	
10 4C2	9,917	1m	
11 4C2	2,311	1m	
12 3N3	30	1m	
13 6R2	176	1m	
14 6C9	86	1m	
15 6F9b	0.56	1m	
16 5C6b	0.06	1m	

Mathematics Paper 1: Mark Scheme

<p>17 6C7a</p>	<p>Award TWO marks for the correct answer of 162,006.</p> <p>If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error, e.g.</p> $\begin{array}{r} 6231 \\ \times 26 \\ \hline 37386 \\ 124620 \\ \hline 162,906 \text{ (error)} \end{array}$ <p>OR</p> $\begin{array}{r} 6231 \\ \times 26 \\ \hline 37386 \\ 124630 \text{ (error)} \\ \hline 162016 \end{array}$ <p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>Do not award any marks if the error is in the place value, e.g. the omission of the zero when multiplying the tens:</p> $\begin{array}{r} 6231 \\ \times 26 \\ \hline 37386 \\ 12462 \text{ (place value error)} \\ \hline 49848 \end{array}$	<p>Up to 2m</p>	
<p>18 5C6a</p>	<p>4,000</p>	<p>1m</p>	
<p>19 6F9a</p>	<p>0.009</p>	<p>1m</p>	

Mathematics Paper 1: Mark Scheme

<p>20 6C7b</p>	<p>Award TWO marks for the correct answer of 56</p> <p>If the answer is incorrect, award ONE mark for a formal method of division with no more than ONE arithmetic error, i.e.</p> <ul style="list-style-type: none"> • long division algorithm, e.g. $ \begin{array}{r} \overline{) 784} \\ \underline{560} \\ 224 \\ \underline{210} \\ 144 \\ \underline{140} \\ 4 \end{array} $ <p style="margin-left: 20px;">(50 x 14) (error) (6 x 14)</p> <p>OR</p> $ \begin{array}{r} \overline{) 784} \\ \underline{560} \\ 224 \\ \underline{210} \\ 144 \\ \underline{140} \\ 4 \end{array} $ <p style="margin-left: 20px;">(error) (50 x 14) (6 x 14)</p> <ul style="list-style-type: none"> • short division algorithm, e.g. $ \begin{array}{r} \overline{) 784} \\ \underline{560} \\ 224 \\ \underline{210} \\ 144 \\ \underline{140} \\ 4 \end{array} $ <p style="margin-left: 20px;">(error in carrying digit)</p>	<p>Up to 2m</p>	
<p>21 5F5</p>	<p>105</p>	<p>1m</p>	
<p>22 5C7b</p>	<p>157</p>	<p>1m</p>	
<p>23 5F4</p>	<p>$\frac{6}{6}$</p>	<p>1m</p>	<p>Accept 1.</p>

Mathematics Paper 1: Mark Scheme

<p>24 6C7a</p>	<p>Award TWO marks for the correct answer of 29, 304.</p> <p>If the answer is incorrect, award ONE mark for a formal method of long multiplication with no more than ONE arithmetic error, e.g.</p> $\begin{array}{r} 792 \\ \times 37 \\ \hline 5544 \\ 23760 \\ \hline 29305 \end{array} \text{ (error)}$ <p>OR</p> $\begin{array}{r} 792 \\ \times 37 \\ \hline 5544 \\ 23860 \\ \hline 29404 \end{array} \text{ (error)}$ <p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>Do not award any marks if the error is in the place value, e.g. the omission of the zero when multiplying the tens:</p> $\begin{array}{r} 792 \\ \times 37 \\ \hline 5544 \\ 2376 \\ \hline 7920 \end{array} \text{ (place value error)}$	<p>Up to 2m</p>	
<p>25 5F10</p>	<p>32.028</p>	<p>1m</p>	
<p>26 6F4</p>	<p>$\frac{1}{12}$</p>	<p>1m</p>	
<p>27 6F5b</p>	<p>$\frac{3}{35}$</p>	<p>1m</p>	
<p>28 6F5a</p>	<p>$\frac{1}{20}$</p>	<p>1m</p>	
<p>29 4F9</p>	<p>200</p>	<p>1m</p>	

Mathematics Paper 1: Mark Scheme

30 6F4	$3 \frac{11}{12}$	1m	Accept $\frac{47}{12}$
31 6R2	72	1m	
32 6F9a	1,000	1m	
33 5C6a	40	1m	
34 6R2	700	1m	
35 5F5	72	1m	
36 6C7b	<p>Award TWO marks for the correct answer of 56</p> <p>If the answer is incorrect, award ONE mark for a formal method of division with no more than ONE arithmetic error, i.e.</p> <ul style="list-style-type: none"> long division algorithm, e.g. $ \begin{array}{r} \\ \\ \\ \\ \end{array} $ <p style="margin-left: 40px;">(50 x 62) (error) (6 x 62)</p> <p>OR</p> $ \begin{array}{r} \\ \\ \\ \\ \end{array} $ <p style="margin-left: 40px;">(error) (50 x 62) (6 x 62)</p> <ul style="list-style-type: none"> short division algorithm, e.g. $ \begin{array}{r} \\ \\ \\ \end{array} $ <p style="margin-left: 40px;">(error in carrying digit)</p>	Up to 2m	

Mathematics Paper 2: Mark Scheme

Paper 2 - Reasoning (out of 35 marks)

Question NC ref code	Requirement	Mark	Additional guidance																																				
1 4F7	If the answer is incorrect, award ONE mark for three numbers correctly rounded. <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Number</th> <th style="padding: 5px;">Rounded to the nearest whole number</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">11.1</td> <td style="padding: 5px;">11</td> </tr> <tr> <td style="padding: 5px;">51.6</td> <td style="padding: 5px;">52</td> </tr> <tr> <td style="padding: 5px;">39.5</td> <td style="padding: 5px;">40</td> </tr> <tr> <td style="padding: 5px;">70.4</td> <td style="padding: 5px;">70</td> </tr> </tbody> </table>	Number	Rounded to the nearest whole number	11.1	11	51.6	52	39.5	40	70.4	70	Up to 2m																											
Number	Rounded to the nearest whole number																																						
11.1	11																																						
51.6	52																																						
39.5	40																																						
70.4	70																																						
2 3N4	150 and 250 270 and 130 190 and 210	1m	Accept alternative unambiguous positive indications, e.g. pairs ticked.																																				
3 4C6a	<table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">×</th> <th style="padding: 5px;">1</th> <th style="padding: 5px;">2</th> <th style="padding: 5px;">3</th> <th style="padding: 5px;">4</th> <th style="padding: 5px;">5</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">4</td> <td></td> <td></td> <td></td> <td></td> <td style="padding: 5px;">a</td> </tr> <tr> <td style="padding: 5px;">5</td> <td></td> <td></td> <td></td> <td style="padding: 5px;">a</td> <td></td> </tr> </tbody> </table>	×	1	2	3	4	5	1						2						3						4					a	5				a		1m	Accept alternative unambiguous positive indications, e.g. crosses.
×	1	2	3	4	5																																		
1																																							
2																																							
3																																							
4					a																																		
5				a																																			
4 6N5	28	1m	Do not accept -28.																																				
5 a) 4S1 b) 4S1 c) 5S2	a) 19 degrees centigrade b) 12:30pm c) Between 3pm and 4pm	1m 1m 1m																																					
6 4C8	Award TWO marks for the correct answer of 760 km. If the answer is incorrect, award ONE mark for evidence of appropriate method, e.g. $76 \text{ km} \times 5 = 380 \text{ km}$ $380 \text{ km} \times 2$	Up to 2m	Answer need not be obtained for the award of ONE mark.																																				

Mathematics Paper 2: Mark Scheme

7 6C5	Accept any three of the following answers: 37, 43, 47, 53, 67	1m										
8 5G4a	a) C and D	1m										
	b) B and E	1m										
9 5M7a	40	1m										
10 6R1	a) 2:5 8:20	1m	Accept equivalent ratios.									
	b) 30 boxes	1m										
11 6R1 / 5M9a	Award TWO marks for the correct answer of 60p. If the answer is incorrect, award ONE mark for evidence of appropriate working, e.g. (200 – 20) ÷ 3 = wrong answer OR £2 – 20 ÷ 3 = wrong answer	Up to 2m	Accept £0.60p Answer need not be obtained for the award of ONE mark.									
12 5M9a	<table border="1" style="margin: auto; border-collapse: collapse;"> <tbody> <tr> <td style="padding: 5px;">8</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">6</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">2</td> </tr> </tbody> </table>	8	1	6	3	5	7	4	9	2	1m	All 3 correct for ONE mark.
8	1	6										
3	5	7										
4	9	2										
13 3C4	Award THREE marks for the correct answer of £97.50. If the answer is incorrect, award TWO marks for evidence of an appropriate complete method which contains no more than one arithmetic error, e.g. 26 pupils x £5 = £135 (error) 6 pupils x £3.75 = £22.50 £135 + £22.50 = £157.50 Award ONE mark for evidence of an appropriate method with more than one arithmetic error.	Up to 3m	Accept £97.50p Answer need not be obtained for the award of ONE mark.									
14 6M7b	Award TWO marks for the correct answer of 108 cm ² . If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $\frac{1}{2}$ (18 x 12)	Up to 2m	Answer need not be obtained for the award of ONE mark.									

Mathematics Paper 2: Mark Scheme

15 6F11	$\frac{2}{5}$ and $\frac{1}{2}$	1m	Accept alternative unambiguous positive indications e.g. ticks.
16 5C6b / 5C5b	Award TWO marks for the correct answer of 16. If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $0.2 \times 1,000 = 200$ $200 - 40 = 160$ $160 \div 10$	Up to 2m	Answer need not be obtained for the award of ONE mark.
17 5M5 / 5M9c	Award TWO marks for the correct answer of 175g. If the answer is incorrect, award ONE mark for evidence of appropriate method, e.g. $1.2 \text{ kg} - 500\text{g} = 700\text{g}$ $700\text{g} \div 4$	Up to 2m	Answer need not be obtained for the award of ONE mark.
18 6C5	An explanation which gives a counter-example to illustrate that 96 is not the correct answer, eg: <ul style="list-style-type: none">• '96 is not a multiple of 7'• '56 is the lowest common multiple of 7 and 8'	1m	No mark is awarded for circling 'No' alone. If 'Yes' is circled but a correct, unambiguous explanation is given, then award the mark.
19 6F9a	1,000	1m	
20 6R4	18 and 50	Up to 2m	
21 6M9	Award TWO marks for the correct answer of 25.75km. If the answer is incorrect award ONE mark for appropriate conversions.	Up to 2m	

Mathematics Paper 3: Mark Scheme

Paper 3 - Reasoning (out of 35 marks)

Question NC ref code	Requirement	Mark	Additional guidance
1 5N1	500,100 502,100 505,100	Up to 2m	For ONE mark, accept two correct missing numbers.
2 4M4c	6 minutes 45 seconds	1m	
3 4F2	$\frac{\boxed{3}}{4} = \frac{6}{\boxed{8}} = \frac{12}{16}$	1m	Both answers correct for ONE mark.
4 3M4f	4:45pm	1m	Allow 16:45.
5 6R2	£352	1m	
6 5C6a	5	1m	
7 6N6	Award TWO marks for the correct answer of 26. If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $16 - (-4) = 20$ 4 gaps = $20 \div 4 = 5$ $16 + 5 = 21$ $21 + 5$	Up to 2m	
8 6C9	= > <	Up to 2m	For ONE mark, accept two correct missing symbols.

Mathematics Paper 3: Mark Scheme

<p>9 6C7b</p>	<p>Award THREE marks for the correct answer of 853.</p> <p>If the answer is incorrect, award TWO marks for the correct long division algorithm:</p> $ \begin{array}{r} 852 \\ 24 \overline{) 20452} \\ \underline{- 192} \quad (8 \times 24) \\ 125 \\ \underline{- 120} \quad (5 \times 24) \\ 52 \\ \underline{- 48} \quad (2 \times 24) \\ 4 \end{array} $ <p>OR short division algorithm:</p> $ \begin{array}{r} 852 \\ 24 \overline{) 204 \overset{175}{5} 2} \end{array} $ <p>If the answer is incorrect, award ONE mark for a formal method of division with no more than ONE arithmetic error.</p>	<p>Up to 3m</p>	<p>An answer of TWO marks can be awarded for the correct answer to the long division (which is 852r4) but 853 is needed for the full 3 marks.</p>															
<p>10 4N2b</p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px;">1,000 less</th> <th style="padding: 2px;">Number</th> <th style="padding: 2px;">1,000 more</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">4,098</td> <td style="padding: 2px;">5,098</td> <td style="padding: 2px;">6,098</td> </tr> <tr> <td style="padding: 2px;">2,999</td> <td style="padding: 2px;">3,999</td> <td style="padding: 2px;">4,999</td> </tr> <tr> <td style="padding: 2px;">781</td> <td style="padding: 2px;">1,781</td> <td style="padding: 2px;">2,781</td> </tr> <tr> <td style="padding: 2px;">8,009</td> <td style="padding: 2px;">9,009</td> <td style="padding: 2px;">10,009</td> </tr> </tbody> </table>	1,000 less	Number	1,000 more	4,098	5,098	6,098	2,999	3,999	4,999	781	1,781	2,781	8,009	9,009	10,009	<p>Up to 2m</p>	<p>For ONE mark, accept three correct missing numbers.</p>
1,000 less	Number	1,000 more																
4,098	5,098	6,098																
2,999	3,999	4,999																
781	1,781	2,781																
8,009	9,009	10,009																
<p>11 5C7b / 5C8a</p>	<p>Award TWO marks for the correct answer of 128.</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate method, e.g.</p> <p>$256 \div 4 = 64$</p> <p>64×2</p>	<p>Up to 2m</p>	<p>Answer need not be obtained for the award of ONE mark.</p>															
<p>12 4C8</p>	<p>Circle = 8</p> <p>Rectangle = 4</p> <p>Rhombus = 9</p>	<p>Up to 2m</p>	<p>For ONE mark, accept two correct values.</p>															

Mathematics Paper 3: Mark Scheme

<p>13 5F8</p>		<p>1m</p>	
<p>14 6F11</p>	<p>a) 80% b) 21 out of 25</p>	<p>1m 1m</p>	<p>b) accept 'last week' or '84%'.</p>
<p>15 6P2</p>	<p>Award ONE mark for three vertices of the shape, excluding B, translated correctly as shown below:</p> <div style="text-align: center; padding: 10px;"> </div>	<p>1m</p>	
<p>16 3M4a / 5G4b</p>	<p>8:30pm</p>	<p>1m</p>	<p>Do not accept 20:30.</p>
<p>17 4M4c/ 5S1</p>	<p>a) 62 minutes b) 09:22</p>	<p>1m 1m</p>	<p>Accept 09:22am.</p>
<p>18 4P3a / 5G2a</p>	<p>Award TWO marks for the correct answer of (10,6)</p> <p>If the answer is incorrect award ONE mark for evidence of an appropriate method, such as deduction of the length of the square from the coordinates given AND subtraction of this amount from the coordinates of B, e.g.</p> <p>24 – 17 13 – 7</p>	<p>Up to 2m</p>	<p>Accept appropriate indications on the diagram as evidence of the method.</p>

Mathematics Paper 3: Mark Scheme

<p>19 6A4</p>	<p>Award TWO marks for correct answers of 2, 3, 7.</p> <p>a = <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td>2</td><td>3</td><td>7</td></tr></table> b = <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>16</td><td>14</td><td>12</td><td>4</td></tr></table></p>	1	2	3	7	16	14	12	4	<p>Up to 2m</p>	<p>For ONE mark, accept two correct missing numbers.</p>
1	2	3	7								
16	14	12	4								
<p>20 5C7b</p>	$ \begin{array}{r} \\ 11 \overline{) 4956} \\ \underline{- 44} \\ 5 \end{array} $	<p>Up to 2m</p>	<p>For ONE mark, accept two correct missing numbers.</p>								
<p>21 6S3</p>	<p>Gives a correct explanation, eg:</p> <ul style="list-style-type: none"> • His average is 26.5 • $32 + 28 + 17 + 29 = 106$ $106 \div 4$ is more than 25 	<p>2m</p>									