National curriculum tests

Key Stage 2

Mathematics

PiXL Paper A

1, 2 and 3: Mark Scheme

PiXL PRIMARY partners in excellence

1 - Arithmetic (Out of 40 marks)

Question NC ref code	**Requirement**	**Mark**	**Additional guidance**
1 3N2b	908	**1m**	
2 4N2b	976	**1m**	
3 4C7	108	**1m**	
4 3C2	789	**1m**	
5 4C2	6,156	**1m**	
6 3N2b	992	**1m**	
7 4C7	926	**1m**	
8 4C6a	8	**1m**	
9 3F4	$\frac{5}{8}$	**1m**	
10 4F9	2.6	**1m**	
11 4F9	$\frac{7}{5}$ or $1\frac{2}{5}$	**1m**	
12 5C7b	316	**1m**	
13 5C2	39,250	**1m**	
14 5C2	8,928	**1m**	
15 5C8a	29	**1m**	
16 5C6b	7,200	**1m**	
17 5F10	30.75	**1m**	

18 5C7b	1,708	**1m**	
19 5F4	$\frac{19}{15}$ or $1\frac{4}{15}$	**1m**	
20 6F9b	56.07	**1m**	
21 5C2	11,813	**1m**	
22 5F10	21.33	**1m**	
23 6C7a	Award **TWO** marks for the correct answer of 2,108. If the answer is incorrect, award **ONE** mark for a formal method of long multiplication with no more than ONE arithmetic error, e.g. 62 x 34 248 1860 1008 (error) **OR** 62 x 34 248 1890 (error) 2138	**Up to 2m**	Working must be carried through to reach a final answer for the award of **ONE** mark. **Do not** award any marks if the error is in the place value, e.g. the omission of the zero when multiplying the tens: 62 x 34 248 186 (place value error) 434
24 5F5	$\frac{5}{3}$ or $1\frac{2}{3}$	**1m**	
25 6R2	180	**1m**	
26 5F10	5.502	**1m**	
27 6F4	$2\frac{7}{8}$	**1m**	

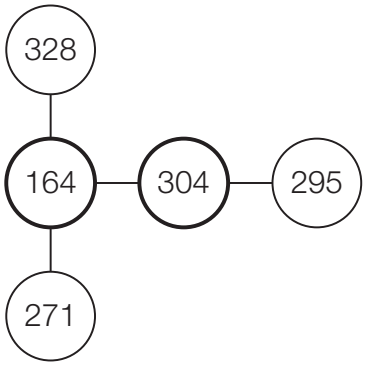
28 6C7b	Award **TWO** marks for the correct answer of 52 If the answer is incorrect, award **ONE** mark for a formal method of division with no more than **ONE** arithmetic error, i.e. • long division algorithm, e.g. 5 0 r 6 2 8 | 1 4 5 6 – 1 4 0 (5 x 28) 0 6 (error) – 0 (0 x 28) 6 **OR** 5 3 (error) 2 8 | 1 4 5 6 – 1 4 0 (5 x 28) 5 6 – 5 6 (2 x 28) 0 • short division algorithm, e.g. 5 1 r 18 2 8 | 1 4 5 ^{4}6 (error in carrying digit)	**Up to 2m**	
29 6C7a	Award **TWO** marks for the correct answer of 15,648 If the answer is incorrect, award **ONE** mark for a formal method of long multiplication with no more than **ONE** arithmetic error, e.g. 3 2 6 x 4 8 2 6 0 8 1 3 0 4 0 1 5 0 4 8 (error) **OR** 3 2 6 x 4 8 2 6 0 8 1 3 0 8 0 (error) 1 5 6 8 8	**Up to 2m**	Working must be carried through to reach a final answer for the award of **ONE** mark. **Do not** award any marks if the error is in the place value, e.g. the omission of the zero when multiplying the tens: 3 6 2 x 4 8 2 6 0 8 1 3 0 4 (place value error) 3 9 1 2

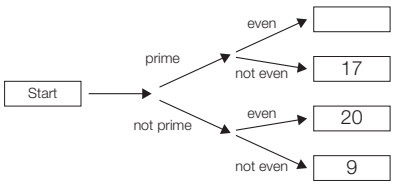
30 5C5d	125	**1m**	

31
6C7b
	Award **TWO** marks for the correct answer of 48
	
	If the answer is incorrect, award **ONE** mark for a formal method of division with no more than **ONE** arithmetic error, i.e.
	
	• long division algorithm, e.g.
	
	`        4 8 r 63`
	`5 2 | 2 4 9 6`
	`  – 2 0 8` (4 x 52)
	`    4 1 9` (error)
	`  – 4 1 6` (8 x 52)
	`        3`
	
	OR
	
	`        4 9` (error)
	`5 2 | 2 4 9 6`
	`  – 2 0 8` (4 x 52)
	`    4 1 6`
	`  – 4 1 6` (8 x 52)
	`        0`
	
	• short division algorithm, e.g.
	
	`        4 0 r 6`
	`5 2 | 2 4 9 ⁴6` (error in carrying digit)
		Up to 2m	

32 6C6	288	**1m**	
33 6F5b	$\frac{3}{24}$ or $\frac{1}{8}$	**1m**	
34 6F5a	$\frac{2}{12}$ or $\frac{1}{6}$	**1m**	
35 5C7a	34101	**1m**	
36 6C9	64	**1m**	

2 - Reasoning (Out of 35 marks)

<table>
<tr><th>Question
NC ref code</th><th>Requirement</th><th>Mark</th><th>Additional guidance</th></tr>
<tr><td>1
3N2a</td><td>Nine hundred and eighty-three</td><td>1m</td><td></td></tr>
<tr><td>2
4M1</td><td>£1.78</td><td>1m</td><td></td></tr>
<tr><td>3
3C8</td><td>127 tickets</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of an appropriate method which contains no more than ONE mathematical error.</td></tr>
<tr><td>4
3N1b</td><td>32, 40</td><td>1m</td><td></td></tr>
<tr><td rowspan="2">5
4S1</td><td>a) 6</td><td>1m</td><td rowspan="2"></td></tr>
<tr><td>b) 9</td><td>1m</td></tr>
<tr><td>6
3C4</td><td> 
</td><td>Up to 2m</td><td>Award ONE mark for each correct answer.</td></tr>
<tr><td>7
4M4b</td><td>15:13</td><td>1m</td><td></td></tr>
<tr><td>8
5F7</td><td><table><tr><th>Number</th><th>Rounded to the nearest whole number</th></tr><tr><td>8.25</td><td>8</td></tr><tr><td>7.91</td><td>8</td></tr><tr><td>5.51</td><td>6</td></tr><tr><td>9.09</td><td>9</td></tr></table></td><td>Up to 2m</td><td>Award ONE mark for three correct answers.</td></tr>
<tr><td rowspan="2">9
5F6a
5F11</td><td>a) 0.3</td><td>1m</td><td rowspan="2">Accept any indication for 0.3.</td></tr>
<tr><td>b) 30%</td><td>1m</td></tr>
</table>

<table>
<tr><td>10
5C5c</td><td> 
</td><td>1m</td><td>Award ONE mark for all three numbers correctly placed.</td></tr>
<tr><td>11
6C8</td><td>Award TWO marks for the correct answer of 10,777.</td><td>Up to 2m</td><td>If the answer is incorrect, award ONE mark for evidence of appropriate method, e.g.
17,803 + 6,415 + 11,405 = 35,623
46,400 – 35,623
Answer need not be obtained for the award of ONE mark.</td></tr>
<tr><td>12
6C7b</td><td>8 coaches</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of an appropriate method which contains no more than ONE mathematical error.</td></tr>
<tr><td rowspan="2">13
5N5</td><td>a) 9 °C</td><td>1m</td><td></td></tr>
<tr><td>b) 10 °C</td><td>1m</td><td></td></tr>
<tr><td>14
6R2</td><td>1,500 ml</td><td>1m</td><td></td></tr>
<tr><td>15
5M9c</td><td>112.5 grams</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of an appropriate method which contains no more than ONE mathematical error.</td></tr>
<tr><td>16
6G4a</td><td><table>
<tr><th>Type of triangle</th><th>Angle 1</th><th>Angle 2</th><th>Angle 3</th></tr>
<tr><td>Isosceles</td><td>70°</td><td>70°
or 55°</td><td>40°
or 55°</td></tr>
<tr><td>Right-angled</td><td>80°</td><td>90°</td><td>10°</td></tr>
<tr><td>Equilateral</td><td>60°</td><td>60°</td><td>60°</td></tr>
<tr><td>Scalene</td><td>70°</td><td>50°
or 30°
Or any other combi-nation to 180°</td><td>60°
or 80°
Or any other combi-nation to 180°</td></tr>
</table></td><td>Up to 2m</td><td>Award ONE mark for three correct triangles.</td></tr>
<tr><td>17
5M9a</td><td>£5.75</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of an appropriate method which contains no more than ONE mathematical error.</td></tr>
</table>

18 6S1	a) 45p	**1m**	
	b) 20p	**1m**	
	c) 2 minutes in day and 6 minutes in the evening	**1m**	
19 5F2b	$\frac{6}{10}$, $\frac{60}{100}$	**1m**	
6F3	$\frac{1}{60}$, $\frac{1}{6}$, $\frac{5}{10}$, $\frac{60}{100}$	**Up to 2m**	
20 6F9a	An explanation which illustrates that the answer of 1.6 x 1,000 is the same as 16 x 100 eg: • Both equal 1,600	**1m**	No mark is awarded for circling 'Yes' alone. Do not accept vague or incomplete explanations If 'No' is circled but a correct, unambiguous explanation is given, then award the mark.

3 - Reasoning (Out of 35 marks)

Question NC ref code	**Requirement**	**Mark**	**Additional guidance**
1 3N1b	An explanation which recognises that an odd number cannot be a multiple of 4, eg: • 'A multiple of 4 cannot be odd' • 'All multiples of 4 are even' • 'An odd number cannot be a multiple of 4' • 'Multiples of 4 must end in 0, 2, 4, 6 or 8'	**1m**	
2 4M2	Accept answers in the range of 1800 ml to 1950 ml	**1m**	
3 4M5	Award **TWO** marks for the correct answer of 2.7 kg.	**Up to 2m**	If the answer is incorrect, award **ONE** mark for evidence of appropriate method, e.g. 500g + 450g + 750g + 1,000g = 2,700g 2,700g ÷ 1,000 g Answer need not be obtained for the award of **ONE** mark.
4a 5S1	2	**1m**	
4b 5S1	1 hour 50 minutes	**1m**	
4c 5M4	22:10	**1m**	Accept 10:10pm
5 5C6b	Award **TWO** marks for all three calculations completed correctly, as shown: 1.9 [x 100] = 190 1.9 [÷ 10] = 0.19 1.9 [÷ 1000] = 0.0019	**Up to 2m**	If the answer is incorrect,award **ONE** mark for two calculations correct.

6 5F2a	Award **TWO** marks for the correct answer of $3\frac{3}{20}$	**Up to 2m**	If the answer is incorrect, award **ONE** mark for evidence of appropriate method, e.g. $4\frac{3}{5} + 2\frac{1}{4} = 4\frac{12}{20} + 2\frac{5}{20} = 6\frac{17}{20}$ $10 - 6\frac{17}{20}$ Answer need not be obtained for the award of **ONE** mark.
7 5M9a	20p and 10p	**1m**	
8 5F4	$\frac{\boxed{1}}{10} + \frac{4}{5} = \frac{9}{10}$ $\frac{\boxed{3}}{5} - \frac{5}{10} = \frac{1}{10}$	**Up to 2m**	Award **ONE** mark for one correct missing number.
9 6N5	-7 and 1	**1m**	Numbers to be in correct order as shown.
10 5M9d	Indicates A and gives the answer 75ml	**Up to 2m**	Award **ONE** mark for jug A indicated with the correct method of 400ml – 325 ml = incorrect answer.
11 6G2a	A triangle can have 2 acute angles. ✔ A triangle can have 2 obtuse angles. ✘ A triangle can have 2 parallel sides. ✘ A triangle can have 2 perpendicular sides. ✔	**Up to 2m**	Award **ONE** mark for 3 correctly marked statements.
12 6N3	a) F	**1m**	
	b) 2	**1m**	
13 6M9	Award **THREE** marks for the correct answer of £28.90	**Up to 3m**	If answer is incorrect, award **TWO** marks for evidence of an appropriate method which contains no more than **ONE** mathematical error.

<table>
<tr><td>14
5C5a/5C5d</td><td>Award TWO marks for
Joe started with 10 and 16
Joe's even numbers may be given in either order.
AND
Dev started with 9 and 15
Dev's odd numbers may be given in either order.</td><td>Up to 2m</td><td>If the answer is incorrect, award ONE mark for three numbers correctly attributed
or
9 AND 10 AND 15 AND 16 with some or all attributed to the wrong child.</td></tr>
<tr><td>15
4C6a</td><td><table><tr><td>x</td><td>9</td><td>7</td><td>12</td></tr><tr><td>8</td><td>72</td><td>56</td><td>96</td></tr><tr><td>12</td><td>108</td><td>84</td><td>144</td></tr></table></td><td>Up to 2m</td><td>Award ONE mark for 3 out of 4 missing boxes correctly completed.</td></tr>
<tr><td>16
5F5</td><td>5 tins</td><td>1m</td><td></td></tr>
<tr><td rowspan="2">17
6R1</td><td>a) 2500 ml</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of attempt to calculate the answer to 1500 ÷ 6 × 10 by any appropriate method.</td></tr>
<tr><td>b) 16</td><td>Up to 2m</td><td>If answer is incorrect, award ONE mark for evidence of attempt to calculate the answer by any appropriate method.</td></tr>
<tr><td rowspan="2">18
6A3</td><td>y = 8</td><td>1m</td><td></td></tr>
<tr><td>x = 9</td><td>1m</td><td></td></tr>
</table>