



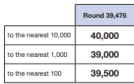



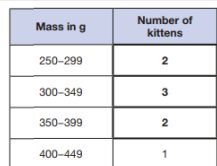
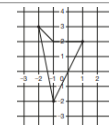
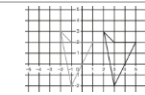



Paper 1: Arithmetic

1	6,090	1
2	8,357	1
3	20	1
4	336	1
5	369	1
6	8.993	1
7	60	1
8	10	1
9	0	1
10	13	1
11	22 (not -22)	1
12	8	1
13	110	1
14	253.4	1
15	10	1
16	27	1
17	101,000	1
18	600 (not 600%)	1
19	4.75	1
20	0.009	1
21	7.1	1
22	$\frac{6}{7}$ (or equiv. fraction)	1
23	22,572	2
24	$\frac{19}{20}$ (or 0.95 or equiv.)	1
25	24	
26	$3\frac{3}{10}$ or $\frac{33}{10}$ (or 3.3 or equiv. fraction)	1
27	112	1
28	$\frac{23}{36}$	1
29	459 (not 459%)	1
30	215,016	2
31	$\frac{2}{9}$ (or equiv. fraction)	1
32	$1\frac{3}{4}$ or $\frac{7}{4}$ (or equiv.)	1
33	162 (not 162%)	1
34	$17\frac{1}{2}$ or $\frac{70}{4}$ or $\frac{35}{2}$ (or equiv.)	1
35	450	1
36	97	2

1		1
2	8,072	1
3		1
4		1
5	110 155 200 245 290 335	2
6	10	1
7	2.5 or $2\frac{1}{2}$	1
8a	11 25 53	1
8b	25 53 109	1
9	124	2
10		1
11a	0.25 (don't accept fractions)	1
11b	65(p) or (£)0.65	1
12	$\frac{2}{10} > 0.07$ $\frac{23}{100} < 0.23$	1
13	See guidance	2
14	 One mark for 2 correct	2
15	25	1
16	4	1
17	144	2
18	See guidance	1
19	3.75	2
20	 One mark for one correct and no incorrect or two correct and one incorrect	2
21		1
22a	$\frac{2}{5}$ (or equiv. fractions or 0.4)	1
22b	10.7	2
23	720	2

15	£7,899	1
2a	7 (not 70,000 or 70 thousand)	1
2b	4,000,000/ 4 million (not 4)	1
3	Tick one. $10 + a$ <input type="checkbox"/> $10 \div a$ <input type="checkbox"/> $a - 10$ <input type="checkbox"/> $10 - a$ <input checked="" type="checkbox"/> $a \times 10$ <input type="checkbox"/>	1
4	 lightest	1
5	1 2 8 + 7 2 = 2 0 0	1
6	£6.87	2
7a	155	1
7b	 Don't accept tally marks alone	1
8	1,356	2
9	2,250 (don't accept $2000\frac{1}{4}$ / $2\frac{1}{4}$ / 2.25)	1
10a		1
10b		1
11		2
12	length = 19 cm width = 9.1 cm	1
13	See guidance	1
14	91	1
15	400	1
16	£1.85	1
17	One of the following: $x = 8$ and $y = 6$ $x = 6$ and $y = 7$ $x = 4$ and $y = 8$ $x = 2$ and $y = 9$	1
18	$\frac{1}{2}$ <input checked="" type="checkbox"/> $\frac{3}{10}$ <input type="checkbox"/> $\frac{3}{4}$ <input type="checkbox"/> $\frac{3}{10}$ <input checked="" type="checkbox"/> $\frac{3}{10}$ <input type="checkbox"/>	2
19	7,174	3
20	29	2
21a	B is (55,30)	1
21b	D is (55,14)	1
22	10.5 cm/ $10\frac{1}{2}$ cm	1

# Paper 1: Arithmetic (guidance on highlighted questions)

<p><b>23</b> Award <b>TWO</b> marks for the correct answer of 22,572</p> <p>If the answer is incorrect, award <b>ONE</b> mark for a formal method of long multiplication with no more than <b>ONE</b> arithmetic error, e.g.</p> <ul style="list-style-type: none"> <li> <math display="block">\begin{array}{r} 836 \\ \times 27 \\ \hline 5852 \\ 16720 \\ \hline 22602 \text{ (error)} \end{array}</math> </li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li> <math display="block">\begin{array}{r} 836 \\ \times 27 \\ \hline 5612 \text{ (error)} \\ 16720 \\ \hline 22332 \end{array}</math> </li> </ul>	<p><b>Up to 2m</b></p> <p>Working must be carried through to reach a final answer for the award of <b>ONE</b> mark.</p> <p><b>Do not</b> award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens:</p> $\begin{array}{r} 836 \\ \times 27 \\ \hline 5852 \\ 1672 \text{ (place value error)} \\ \hline 7524 \end{array}$	<p><b>30</b> Award <b>TWO</b> marks for the correct answer of 215,016</p> <p>If the answer is incorrect, award <b>ONE</b> mark for the formal method of long multiplication with no more than <b>ONE</b> arithmetic error, e.g.</p> <ul style="list-style-type: none"> <li> <math display="block">\begin{array}{r} 3468 \\ \times 62 \\ \hline 6936 \\ 208080 \\ \hline 214016 \text{ (error)} \end{array}</math> </li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li> <math display="block">\begin{array}{r} 3468 \\ \times 62 \\ \hline 6934 \text{ (error)} \\ 208080 \\ \hline 215014 \end{array}</math> </li> </ul>	<p><b>Up to 2m</b></p> <p>Working must be carried through to reach a final answer for the award of <b>ONE</b> mark.</p> <p><b>Do not</b> award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens:</p> $\begin{array}{r} 3468 \\ \times 62 \\ \hline 6936 \\ 20808 \text{ (place value error)} \\ \hline 27744 \end{array}$
<p><b>25</b> Award <b>TWO</b> marks for the correct answer of 24</p> <p>If the answer is incorrect, award <b>ONE</b> mark for the formal methods of division with no more than <b>ONE</b> arithmetic error, i.e.</p> <ul style="list-style-type: none"> <li>long division algorithm, e.g.</li> </ul> $\begin{array}{r} 23 \text{ r}29 \\ 37 \overline{)888} \\ \underline{-740} \\ 140 \text{ (error)} \\ \underline{-111} \\ 29 \end{array}$ <p><b>OR</b></p> $\begin{array}{r} 42 \text{ (error)} \\ 37 \overline{)888} \\ \underline{-740} \\ 148 \\ \underline{-148} \\ 0 \end{array}$ <p>20 × 37</p> <p>4 × 37</p> <ul style="list-style-type: none"> <li>short division algorithm, e.g.</li> </ul> $\begin{array}{r} 2 \text{ } 3 \text{ r}27 \text{ (error)} \\ 37 \overline{)888} \end{array}$	<p><b>Up to 2m</b></p> <p>Working must be carried through to reach a final answer for the award of <b>ONE</b> mark.</p> <p>Short division methods <b>must</b> be supported by evidence of appropriate carrying figures to indicate the use of a division algorithm, and be a complete method. The carrying figure <b>must</b> be less than the divisor.</p>	<p><b>36</b> Award <b>TWO</b> marks for the correct answer of 97</p> <p>If the answer is incorrect, award <b>ONE</b> mark for the formal methods of division with no more than <b>ONE</b> arithmetic error, i.e.</p> <ul style="list-style-type: none"> <li>long division algorithm, e.g.</li> </ul> $\begin{array}{r} 96 \text{ r}82 \\ 83 \overline{)8051} \\ \underline{-7470} \\ 580 \text{ (error)} \\ \underline{-498} \\ 82 \end{array}$ <p><b>OR</b></p> <ul style="list-style-type: none"> <li> <math display="block">\begin{array}{r} 47 \text{ (error)} \\ 83 \overline{)8051} \\ \underline{-4150} \\ 3901 \\ \underline{-3320} \\ 581 \\ \underline{-581} \\ 0 \end{array}</math> </li> <li> <math display="block">\begin{array}{r} 50 \times 83 \\ 40 \times 83 \\ 7 \times 83 \end{array}</math> </li> <li>short division algorithm, e.g.</li> </ul> $\begin{array}{r} 9 \text{ } 6 \text{ r}73 \\ 83 \overline{)8051} \end{array}$	<p><b>Up to 2m</b></p> <p>Working must be carried through to reach a final answer for the award of <b>ONE</b> mark.</p> <p>Short division methods <b>must</b> be supported by evidence of appropriate carrying figures to indicate the use of a division algorithm, and be a complete method. The carrying figure <b>must</b> be less than the divisor.</p>

## Paper 2: Reasoning (guidance on highlighted questions)

5	<p>Award <b>TWO</b> marks for three correct numbers, as shown:</p> <p><b>110</b> 155 200 245 <b>290</b> <b>335</b></p> <p>Award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>any two numbers correctly placed</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>if box 1 is correct, accept correct follow-through for box 3 from the incorrect value in box 2.</li> </ul>	Up to 2m	Do not accept misreads for this question.	22b	<p>Award <b>TWO</b> marks for the correct answer of 10.7</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>8.1 + 9.3 + 11.9 + 11.8 + 12.4 = 53.5</math> <math>53.5 \div 5</math></li> </ul>	Up to 2m	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p>Any correct rounding or truncating does not negate an appropriate method. Any value which does not result from correct rounding or truncating implies an additional step not shown.</p>
9	<p>Award <b>TWO</b> marks for the correct answer of 124</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>953 - 85 = 868</math> <math>868 \div 7</math></li> </ul>	Up to 2m	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p>If the pupil's evaluation contradicts the appropriate method, the method mark will not be awarded.</p>	23	<p>Award <b>TWO</b> marks for the correct answer of 720</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>3 \times 4 \times 6 = 72</math> <math>8 \times 9 \times 11 = 792</math> <math>792 - 72 =</math></li> </ul> <p>Award <b>ONE</b> mark for sight of 792</p>	Up to 2m	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>
13	<p>Award <b>TWO</b> marks for a completed triangle that has <b>all</b> of the following three points:</p> <ul style="list-style-type: none"> <li>an angle in the range <math>33^\circ</math> to <math>37^\circ</math> inclusive for the angle marked <math>35^\circ</math></li> <li>an angle in the range <math>88^\circ</math> to <math>92^\circ</math> inclusive for the right angle</li> <li>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.</li> </ul> <p>If the answer is incorrect, award <b>ONE</b> mark for a completed triangle and two of the three points correct.</p>	Up to 2m	<p>Accept drawings where any side has been extended past a vertex.</p> <p>When considering whether the triangle is completed, <b>do not</b> accept:</p> <ul style="list-style-type: none"> <li>a quadrilateral or another shape drawn</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>a curved line that is used to complete the shape</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>sides not meeting to form a vertex.</li> </ul>				
17	<p>Award <b>TWO</b> marks for the correct answer of 144</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>8 \times 6 = 48</math> <math>48 \div 4 = 13</math> (error) <math>13 \times 13 = 169</math></li> </ul> <p><b>OR</b></p> <p>Award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>evidence for the side length of the square calculated correctly, i.e. 12</li> </ul>	Up to 2m	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>				
18	<p>Award <b>ONE</b> mark for a correct explanation of why the 95 <b>AND</b> 87 are <b>NOT</b> prime, e.g.</p> <ul style="list-style-type: none"> <li>87 is divisible by 3 and/or 29 <b>AND</b> 95 is divisible by 5 and/or 19</li> <li>87 is in the 3 times table <b>AND</b> 95 is in the 5 times table</li> <li>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</li> <li><math>8 + 7 = 15</math> and 15 is divisible by 3 <b>AND</b> 95 is divisible by 5</li> </ul>	1m	<p>No mark is awarded for circling '89' alone.</p> <p>Both non-primes must be explained correctly for the award of the mark.</p> <p><b>Do not</b> accept vague or incomplete explanations, e.g.</p> <ul style="list-style-type: none"> <li>The other 2 numbers have more than 2 factors (vague)</li> <li>87 is divisible by 3 (incomplete).</li> </ul> <p><b>Do not</b> accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.</p> <ul style="list-style-type: none"> <li><math>3 \times 27 = 87</math></li> <li>89 has three factors</li> <li>no numbers go into 89</li> </ul>				
19	<p>Award <b>TWO</b> marks for the correct answer of 3.75</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>60 \div 4 = 15</math> <math>250 \times 15 = 3750</math> <math>3750 \text{ ml} \div 1000 =</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><math>250 \div 4 = 62.5 \text{ ml per second}</math> <math>62.5 \times 60 = 3750</math> <math>3750 \text{ ml} \div 1000 =</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><math>60 \div 4 = 15</math>, so there are 15 lots of 4 seconds in 1 minute so there are 15 bottles per minute. There are 4 bottles in 1 litre <math>15 \div 4 =</math></li> </ul>	Up to 2m	<p>Accept for <b>TWO</b> marks, 3,750ml for final answer in working and the answer box blank <b>OR</b> 3,750 in the answer box where the litres has been replaced with millilitres.</p> <p>Accept for <b>ONE</b> mark 3,750 litres (l) in the answer box <b>OR</b> the final answer in working and answer box blank.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>				

# Paper 3: Reasoning (guidance on highlighted questions)

4	Masses in correct order, as shown: <div>0.009 kg 0.99 kg 1.025 kg 1.25 kg</div> lightest	1m	All masses must be in the correct order for the award of <b>ONE</b> mark.  Accept for <b>ONE</b> mark the masses written in reverse order <b>AND</b> the label lightest has been changed to follow suit.  Misreads and transcription errors are <b>not</b> allowed.
6	Award <b>TWO</b> marks for the correct answer of £6.87  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g. • £1.49 + £1.64 = £3.13 £10 – £3.13 =  <b>OR</b> • £10 – £1.49 = £8.51 £8.51 – £1.64 =  <b>OR</b> • £10 – 164p – 149p =	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.  Accept for <b>ONE</b> mark an answer of £687 <b>OR</b> £687p as evidence of an appropriate method.  Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
8	Award <b>TWO</b> marks for the correct answer of 1,356  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g. • 4289 + 355 = 4644 6000 – 4644 =  <b>OR</b> • 6000 – 4289 – 355 =  <b>OR</b> • 6000 – 4289 = 1711 1711 – 355 =	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.
10a	Quadrilateral completed, as shown: 	1m	Accept slight inaccuracies in drawing provided the intention is clear. (See page 13 for guidance.)
10b	Quadrilateral translated correctly, as shown: 	1m	Accept slight inaccuracies in drawing provided the intention is clear. (See page 13 for guidance.)  Award <b>ONE</b> mark if the answer to (b) is a quadrilateral with sides drawn and is a correct translation of their answer to (a).
11	Award <b>TWO</b> marks for all four given numbers placed completely correctly 7 times, as shown: <div>Prime numbers: 2 3 5 Factors of 12: 2 3 4 6 Factors of 15: 3 5</div>  If the answer is incorrect, award <b>ONE</b> mark for three of the given numbers all placed completely correctly, e.g. <div>Prime numbers: 2 3 5 Factors of 12: 2 3 4 Factors of 15: 3 5</div>  <b>OR</b> <div>Prime numbers: 2 3 5 6 Factors of 12: 2 3 4 6 Factors of 15: 3 5</div>  <b>OR</b> <div>Prime numbers: 2 3 Factors of 12: 2 3 4 6 Factors of 15: 3 5</div>	Up to 2m	Accept the numbers in any order.  Ignore any additional numbers not given in the question.
13	An explanation that includes a correct counter example, e.g. • When you double 10° it is not obtuse • $2 \times 27^\circ = 54^\circ$ • Double 45° is a right angle not obtuse  <b>OR</b>  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	<b>Do not</b> accept vague or incomplete explanations, e.g. • Sometimes it will be acute • Some acute angles are half an obtuse angle, but not all • When you double an acute angle, you get a right angle  <b>Do not</b> accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g. • $20^\circ\text{C} \times 2 = 40^\circ\text{C}$ • $20\% \times 2 = 40\%$
16	Award <b>TWO</b> marks for the correct answer of £1.85  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g. • $1\frac{1}{2} \times £1.50 = £2.25$ $\frac{1}{2}$ of £1.80 = 70p (error) £2.25 + 70p = £2.95 £5 – £2.95 =  <b>OR</b> • £1.50 + 75 = £2.25 £2.25 + 90 = 415p (error) £5.00 – 415p =  <b>OR</b> • sight of £3.15 <b>OR</b> 315p as evidence of evaluating the correct cost of the potatoes and carrots.	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.  Accept for <b>ONE</b> mark an answer of £185 or £185p as evidence of an appropriate method.  Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
18	Award <b>TWO</b> marks for three boxes ticked correctly, as shown: <div><math>\frac{1}{2}</math> <input checked="" type="checkbox"/> <math>\frac{2}{8}</math> <input checked="" type="checkbox"/> <math>\frac{3}{4}</math> <input type="checkbox"/> <math>\frac{7}{16}</math> <input checked="" type="checkbox"/> <math>\frac{24}{32}</math> <input type="checkbox"/></div>  Award <b>ONE</b> mark for: • only two boxes ticked correctly and no incorrect boxes ticked  <b>OR</b> • three boxes ticked correctly and one incorrect box ticked.	Up to 2m	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.

# Paper 3: Reasoning (guidance on highlighted questions)

19	<p>Award <b>THREE</b> marks for the correct answer of 7,174</p> <p>If the answer is incorrect, award <b>TWO</b> marks for:</p> <ul style="list-style-type: none"> <li>evidence of an appropriate complete method which contains no more than one arithmetic error, e.g.</li> </ul> $\begin{array}{r} 53 \\ \times 68 \\ \hline 3504 \text{ (error)} \end{array} \quad \begin{array}{r} 105 \\ \times 34 \\ \hline 3570 \end{array}$ $3,504 + 3,570 = 7,074$ <p>Award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>evidence of an appropriate method with more than one arithmetic error.</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>sight of 3,604 as evidence of long multiplication step (<math>68 \times 53</math>) completed correctly.</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>sight of 3,570 as evidence of long multiplication step (<math>105 \times 34</math>) completed correctly.</li> </ul>	<p>Up to 3m</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p>A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified.</p> <p><b>TWO</b> marks will be awarded if an appropriate method with the misread number is followed through correctly.</p> <p><b>ONE</b> mark will be awarded for evidence of an appropriate method with the misread number followed through correctly with no more than one arithmetic error.</p>
20	<p>Award <b>TWO</b> marks for the correct answer of 29</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> <li><math>2 \times 500 = 1,000</math> <math>1,000 \div 34 =</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><math>2 \times 500 \div 34 =</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><math>500 \div 34 = 14 \text{ r}23 \text{ (error)}</math> <math>14 \text{ r}23 \times 2 = 28 \text{ r}46</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><math>34 \times 10 = 340</math> <math>34 \times 30 = 1,020</math></li> </ul> <p>Answer = 30 booklets (error)</p>	<p>Up to 2m</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p>Answer does not need to have been rounded or rounded correctly for the award of <b>ONE</b> mark.</p> <p>If a pupil reaches a non-integer answer, for example 28 r2 and expresses it as 28.2 without further working, this is considered a notation error and is condoned.</p> <p>Within an appropriate method, if the pupil's remainder from 500 divided by 34 is less than 17 and this remainder is ignored before doubling, this is acceptable for <b>ONE</b> mark. If the pupil's remainder is 17 or more and it has been ignored before doubling, this is <b>not</b> acceptable for <b>ONE</b> mark.</p> <p><b>Do not</b> accept a trial and improvement method.</p>
21b	<p>Award <b>ONE</b> mark for</p> <p><b>D</b> is (55, 14)</p> <p>If B and D are incorrect, <b>ONE</b> 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.</p> <ul style="list-style-type: none"> <li>D is (same x as B, 14)</li> </ul>	