

Name: _____ Maths Group: _____ Tutor Set: _____

Homework Booklet

KS3 Levels 3-7

Unit 1 – Calculations: Mental, Written and Calculator Methods

Remember to use the back of a page if you need more working out space.

Complete this table indicating the homework you have been set and when it is due by.

Date	Homework	Due By

Please take care of the booklet as you will be required to make a donation to replace it if lost or damaged beyond use.

U1 – Calculations: Mental, Written and Calculator Methods

Mental Maths


**** No Calculator Allowed ****

<p>Section A – Complete the multiplication grid</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	x	1	2	3	4	5	6	7	8	9	10	1											2											3											4											5											6											7											8											9											10											<p>Level 5</p>
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<p>Section B – In a magic square every row, column and corner to corner add to the magic number. Copy these magic squares and fill in the blanks.</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>5</td><td></td><td></td></tr> <tr><td></td><td>7</td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> </table> <p>Magic Number = <u>21</u></p> <table border="1" style="display: inline-table;"> <tr><td>5</td><td></td><td>12</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td>9</td><td></td></tr> </table> <p>Magic Number = <u>24</u></p>	5				7		4			5		12					9		<p>Level 5</p>																																																																																																							
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<p>Section C</p> <ol style="list-style-type: none"> 1) 9 people are on a bus. At the next stop 3 people get off and 8 people get on. How many people are now on the bus? 2) A shop has 83 tins of soup at the start of the day. 36 tins are sold during the day. How many tins of soup did the shop have left at the end of the day? 3) Jenny counts her coloured pencils. She has 4 red, 6 green, 3 yellow and 9 blue pencils. How many coloured pencils does she have all together? 	<p>Level 5</p>																																																																																																																									

U1 – Calculations: Mental, Written and Calculator Methods

Reciprocals

Calculator Allowed

<p>The reciprocal of a number is what we multiply it by to get ____</p> <p>The reciprocal key on a calculator looks like </p>	<p>Level 7</p>																								
<p>What is the reciprocal of each of the following?</p> <p>a) 4</p> <p>b) 16</p> <p>c) $\frac{2}{5}$</p> <p>d) $\frac{7}{8}$</p> <p>e) -8</p> <p>f) -5</p>	<p>Level 7</p>																								
<p>Match up the reciprocal pairs:</p> <table border="1" data-bbox="204 1339 1246 1832"> <tr> <td>$\frac{1}{4}$</td> <td>$1\frac{1}{2}$</td> <td>$\frac{3}{4}$</td> <td>$1\frac{4}{11}$</td> <td>1</td> <td>$3\frac{2}{5}$</td> </tr> <tr> <td>$1\frac{1}{3}$</td> <td>$\frac{4}{5}$</td> <td>$2\frac{1}{6}$</td> <td>$1\frac{1}{4}$</td> <td>$5\frac{2}{3}$</td> <td>1</td> </tr> <tr> <td>$\frac{5}{17}$</td> <td>$\frac{6}{13}$</td> <td>$\frac{1}{5}$</td> <td>$\frac{11}{15}$</td> <td>$\frac{9}{10}$</td> <td>$1\frac{1}{9}$</td> </tr> <tr> <td>$\frac{3}{17}$</td> <td>5</td> <td>12</td> <td>$\frac{1}{12}$</td> <td>$\frac{2}{3}$</td> <td>4</td> </tr> </table>	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	$1\frac{4}{11}$	1	$3\frac{2}{5}$	$1\frac{1}{3}$	$\frac{4}{5}$	$2\frac{1}{6}$	$1\frac{1}{4}$	$5\frac{2}{3}$	1	$\frac{5}{17}$	$\frac{6}{13}$	$\frac{1}{5}$	$\frac{11}{15}$	$\frac{9}{10}$	$1\frac{1}{9}$	$\frac{3}{17}$	5	12	$\frac{1}{12}$	$\frac{2}{3}$	4	<p>Level 7</p>
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U1 – Calculations: Mental, Written and Calculator Methods

4 Rules – Written Methods – Addition

**** No Calculator Allowed ****

<p><u>Section A</u></p> <p>1) $146 + 231$ 2) $584 + 330$ 3) $546 + 254$ 4) $787 + 99$ 5) $835 + 61$</p>	Level 4
<p><u>Section B</u></p> <p>1) $168 + 34$ 2) $159 + 24$ 3) $315 + 49$</p> <p>4) $71 + 246$ 5) $714 + 308 + 1272$ 6) $893 + 12 + 647$</p>	Level 5

Turn to the next page for Section C ...

Section C			Level 5
1) $2.16 + 6.93$	2) $17.65 + 24.87$	3) $64.327 + 28.34$	
4) $3.546 + 12.79$	5) $523.3 + 1.8267$		

U1 – Calculations: Mental, Written and Calculator Methods

4 Rules – Written Methods – Subtraction

**** No Calculator Allowed ****

<p><u>Section A</u></p> <p>1) $457 - 214$ 2) $5683 - 4341$ 3) $564 - 51$ 4) $356 - 42$</p>	<p>Level 4</p>
<p><u>Section B</u></p> <p>1) $453 - 345$ 2) $5673 - 2348$ 3) $4564 - 689$ 4) $350 - 89$</p> <p>5) $8163 - 2714$ 6) $3170 - 986$ 7) $46 - 82$</p>	<p>Level 4-5</p>

Turn to the next page for Section C and D ...

<u>Section C</u> 1) $7.59 - 3.25$ 2) $83.62 - 1.51$ 3) $87.88 - 6.78$	Level 5
<u>Section D</u> 1) $6.22 - 2.66$ 2) $40.065 - 13.98$ 3) $80.88 - 36.784$	Level 5

U1 – Written and Calculator Calculation Methods and Checking
4 Rules – Written Methods – Multiplication
**** No Calculator Allowed ****

<p><u>Section A</u></p> <p>1) 25×6 2) 14×4 3) 47×9 4) 57×5</p>	<p>Level 4</p>
<p><u>Section B</u></p> <p>1) 25×41 2) 39×47</p> <p>3) 63×84 4) 76×98</p>	<p>Level 4</p>

Turn to the next page for Section C and D ...

<p><u>Section C</u></p> <p>1) $49.8 \div 2$ 2) $83.4 \div 2$ 3) $129.84 \div 4$</p>	Level 6
<p><u>Section D</u></p> <p>1) $360 \div 1.2$ 2) $78 \div 0.4$ 3) $214 \div 1.5$</p> <p>4) $42.5 \div 0.2$ 5) $3.24 \div 0.5$ 6) $62.153 \div 1.62$</p>	Level 7

U1 – Calculations: Mental, Written and Calculator Methods
4 Rules – Written Methods – Problem Solving
**** No Calculator Allowed ****

<p><u>Section A</u></p> <p>1) Ryan has £456 and James has £45, how much money do they have altogether?</p> <p>2) Helen earns £136 over the summer and Judy earns £87, what is the difference between their earnings?</p> <p>3) David has a jar with 1425 Jelly Beans in it, and Julian has a jar with 748 chocolate buttons in it. What is the total number of the sweets that they both have?</p> <p>4) What is the sum of 9458 and 723?</p>	<p>Level 4-5</p>
<p><u>Section B</u></p> <p>The ship 'Mary Rose' would usually sail at a speed of 33 miles per hour. On average, the ship used fuel at a rate of 1 gallon for every 13 feet sailed. Calculate how many gallons of fuel the ship used in one hour of travelling at the usual speed. (There are 5280 feet in one mile.)</p> <p>Show your working and give your answer to the nearest gallon.</p>	<p>Level 6</p>

U1 – Calculations: Mental, Written and Calculator Methods
Multiplying and Dividing by Numbers between 0 and 1
Calculator Allowed

<p>For each of the following calculations write the equivalent sum you will do and then the answer, the first one has been done for you.</p> <p>1 $28 \times 0.1 = 28 \div 10 = 2.8$</p> <p>2 3×0.01</p> <p>3 $0.6 \div 0.1$</p> <p>4 $0.5 \div 0.001$</p> <p>5 6.8×0.001</p> <p>6 $7 \div 0.01$</p> <p>7 5.7×0.1</p> <p>8 0.03×0.001</p> <p>9 $4.2 \div 0.01$</p> <p>10 $0.8 \div 0.001$</p>	Level 5
<p>11 $46 \times 0.5 = 46 \div 2 = 23$</p> <p>12 12×0.2</p> <p>13 $5 \div 0.25$</p> <p>14 $23 \div 0.5$</p> <p>15 12×0.3</p> <p>16 4×0.25</p> <p>17 $12 \div 0.2$</p> <p>18 8×0.125</p>	Level 6

U3 – Written and Calculator Calculation Methods and Checking
Using a Calculator
Calculator Allowed

<p>Use your calculator to find the answers to these questions, don't forget to you the brackets button. For question 1 and 5 write the keys you used to find the answer.</p> <p>1 $2.6 (5.83 - 1.9)$</p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>2 $7.38 (5.12 + 6.872)$</p> <p>3 $(4.98 - 3.26) - (3.87 \times 6.34)$</p> <p>4 $(8.75 - 11.7) 28.3$</p>	<p align="center">Level 4</p>
<p>5 $\frac{47.28 \times 3.681}{8.917 \times 4.362}$</p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>6 $\frac{43.987 - 3.798}{6.371 - 1.987}$</p> <p>7 $\frac{4.8 (3.75 - 8.62)}{(2.7 \times 3.85) - 1.63}$</p> <p>8 $\frac{42.8 \times 36.5}{28.37 \times 2.987}$</p>	<p align="center">Level 5</p>

Turn to the next page for further questions ...

<p>5 $\frac{6.384 \times 2.97}{4.729 - 3.68}$</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>6 $\frac{78.734 - 12.69}{5.81 \times 0.873}$</p> <p>7 $\frac{5.8(3.67 - 8.91)}{(7.8 \times 3.69) 4.72}$</p> <p>8 $\frac{782 \times 386}{67 \times 4.89}$</p>	<p>5.....</p> <p>6.....</p> <p>7.....</p> <p>8.....</p> <p>Level 5</p>
<p>Use your calculator to find the following answers. Show the calculator keys used in the boxes:</p> <p>1 3.7^2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>2 4.2^5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>3 $\sqrt{74}$ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>4 $\sqrt[3]{285}$ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>5 $\sqrt[6]{832}$ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>6 $28^{2/3}$ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>7 $16^{-1/4}$ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>8 2^{-3} <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>1.....</p> <p>2.....</p> <p>3.....</p> <p>4.....</p> <p>5.....</p> <p>6.....</p> <p>7.....</p> <p>8.....</p> <p>Level 6</p>

U1 – Calculations: Mental, Written and Calculator Methods

BIDMAS

**** No Calculator Allowed ****

<p>1) Work out the following:</p> <p>a) Add 23 to 56, then subtract 13</p> <p>b) Multiply 6 by 4, then add 34</p> <p>c) Add 24 to half of 88</p> <p>d) How much less than 150 is 9×16?</p>	<p>Level 4</p>
<p>2) Use the rules of operations to calculate the following,</p> <p>a) $7 + 6 \times 2 =$ b) $5 \times 3 + 4 =$ c) $9 \div 3 + 5 =$</p> <p>d) $7 - 10 \div 2 =$ e) $7 + 12 \div 4 =$ f) $12 + 18 \div 6 =$</p>	<p>Level 4</p>
<p>3) a) Calculate.</p> <p>$(4 + 2) \times 3 =$ $4 + (2 \times 3) =$</p> <p>b) Work out the answer to $(2 + 4) \times (6 + 3 + 1) =$</p> <p>c) Put brackets in the calculation to make the answer 50</p> <p>$4 + 5 + 1 \times 5$</p> <p>d) Now put brackets in the calculation to make the answer 34</p> <p>$4 + 5 + 1 \times 5$</p>	<p>Level 4</p>
<p>4) a) $6 \times (20 - 8) =$ b) $(43 + 13) \div 8 =$ c) $9 \times (15 - 9) =$</p> <p>d) $7 \times 9 - 16 \div 2 =$ e) $(100 - 4) \div 8 =$ f) $91 - 27 \div 9 =$</p> <p>g) $(3 \times [9+2]) + 12 =$ h) $48 \div 6 + 54 \div 9 =$</p>	<p>Level 5</p>

Turn to the next page for more questions ...

<p>Use the order of operations to solve the following:</p> <p>1) $31 + 4 \times 6 = \underline{\quad}$ 2) $83 - 16 \times 2 = \underline{\quad}$ 3) $18 \div 3 + 9 = \underline{\quad}$</p> <p>5) $3 \times 7 + 40 \div 2 = \underline{\quad}$ 6) $90 - 4 \times 4 + 8 = \underline{\quad}$ 7) $3 \times 12 + 24 - 6 = \underline{\quad}$</p>	<p>Level 5</p>						
<p>Use BIDMAS to solve the following:</p> <p>1) $36 \div (54 - 48) + 12 = \underline{\quad}$ 2) $19 \times 3 + (84 \div 21)^2 = \underline{\quad}$</p> <p>3) $(18 + 24) \times (16 - 12) = \underline{\quad}$ 4) $3^2 + 4 \times (61 - 39) \div 8 = \underline{\quad}$</p> <p>5) $31 - 15 \div 5 + 9^2 \div (-10 + 13) = \underline{\quad}$ 6) $((3 + 5)^2 \div 8) + 9 = \underline{\quad}$</p>	<p>Level 5</p>						
<p>These cards have operation symbols on them. Place the symbols in the gaps to make the equations true. Each symbol can only be used once in a question. Also, you may not need to use every symbol. Here is an example:</p> <div style="text-align: center; margin: 10px 0;"> <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">(</td> <td style="padding: 5px;">)</td> <td style="padding: 5px;">+</td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">×</td> <td style="padding: 5px;">÷</td> </tr> </table> </div> <div style="text-align: center; margin: 20px 0;"> $66 \boxed{\div} 11 \boxed{+} 3 = 9$ </div> <p>1) $5 \boxed{\quad} 8 \boxed{\quad} 8 = 32$ 2) $6 \boxed{\quad} 3 \boxed{\quad} 2 = 9$</p> <p>3) $11 \boxed{\quad} 16 \boxed{\quad} 4 = 15$ 4) $\boxed{\quad} 10 \boxed{\quad} 4 \boxed{\quad} \boxed{\quad} 4 = 56$</p>	()	+	-	×	÷	<p>Level 6</p>
()	+	-	×	÷		