# **Level 5 Homework booklet 1**

NAME _				
TEACHER	3			

Task	Topic	Date	Date	
		Set	Completed	
1	Calculating With All Four Operations			
2	Multiplying Dividing			
3	Negative Numbers 1			
4	Negative Numbers 2			
5	Checking Order of Magnitude			
6	Place Value			
7	Rounding and Ordering			
8	Ordering Decimals			
9	Number Patterns and Relationships			
10	Simple Formulae			
11	Nth term			

After you have completed each homework self-assess your understanding and the date you completed it

## My Maths

Please see back cover for MyMaths tasks

#### **Parents**

Please read note on back cover

MyMaths	Assessment of Students
•	Progress

	Numbers	Calculating	Algebra	Shape	Data
6	Frac Dec Perc 2 Recurring Decimals 1	Adding Subtracting Fractions Proportion Unitary Method Ratio Dividing 2 Multiply Divide Fractions Intro	Trial and Improvement Conversion graphs y=mx+o Factorising Linear nth Term Drawing Graphs Solving Equations Real Life Graphs	Area of a Circle Circumference of a Circle Constructing Shapes Plans Elevations Enlarging Shapes Interior Exterior Angles Nets Surface Area Area of a Parallelogram Angles in Parallel Lines Reflecting Shapes Rotating Shapes All Transformations Translating Shapes Area of a Triangle Volume of Cuboids Angle Proofs Sum of Angles in a Polygon	Grouping Data Listing Outcomes Drawing Pie Charts Scatter Graphs Two Way Tables
5 5	Decimal Places Rounding Decimals Multiply Decimals by 10 and 100 Equivalent Fractions Comparing Fractions	Add and Subtract Decimals Devide Decimals by Whole Numbers Multiply Decimals by Whole Numbers Multiply Two Decimals Fractions of Amounts Multiply Triple Digits Percentages of Amounts 2 Proportion Ratio Dividing 1 Long Division Finding Fractions Negative Numbers 2 Order of Operations Simple Interest Best Buys	Coordinates 2 Rules and Formulae Simplifying 1 Substitution 1 Single Brackets	Metric Conversion Angle Reasoning Measuring Angles Angle Sums Constructing Triangles Converting Measures Scale Finding Heights Map Scales Scale Drawing Imperial Measures	All averages Mean and Mode Median and Range Reading Pie Charts Probability Intro Simple Probability

#### Task 1

#### **CALCULATING WITH ALL FOUR OPERATIONS**

Name:

<u>Assessment Criteria:</u> To use known facts, place value, knowledge of operations and brackets to calculate including using all 4 operations with decimals to two places

No calculators allowed!

1. a)	Show that 9 x 2.8 is 25.2	
b)	What is the value of 27 x 2.8?	
c)	Calculate 252 ÷ 9	
	day, you can buy a basic calculator for £1.27. This is 18 times <b>less</b> than a lilar calculator cost in In 1975. How much was the 1975 calculator?	
	£	

2	Complete	+6-	falloudes	statamants.
ა.	complete	une	TOLLOWING	statements:

a) 
$$\frac{1}{2}$$
 of 20 =  $\frac{1}{4}$  of \_\_\_\_\_

b) 
$$\frac{3}{4}$$
 of 100 =  $\frac{1}{2}$  of \_\_\_\_\_

4. Insert brackets to make the following calculation true:

$$3 + 4 \times 6 - 5 = 7$$

5. 
$$\frac{3}{5}$$
 = 0.6. What is  $\frac{2}{5}$  as a decimal?

Overall, I think my success level is:

Low High

O O O

Q	CALCULATING WITH ALL FOUR OPERATIONS	<u>©</u>	8
	I can use my understanding of place value in calculations		
	I can use factors to calculate without a calculator		
	I can use partitioning to calculate without a calculator		
	I understand the order of operations		
	I know how to use brackets		
	I can check results, considering whether these are reasonable		
	I can solve word problems from a range of contexts		

I need to practise ...

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Name:

<u>Assessment Criteria:</u> Understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three digit number by any 2 digit number

No calculators allowed, and remember - no workings, no marks!

1. Work out the following calc	ulations:
--------------------------------	-----------

a) 
$$241 \times 15$$

b) 
$$692 \times 37$$

c) 
$$384 \div 16$$

e) 
$$7.23 \times 9.6$$

Overall, I think my success level is:

Q	MULTIPLYING AND DIVIDING	<b>©</b>	8
	I can multiply a three-digit number by a two-digit number without a calculator		
	I can divide a three-digit number by a two-digit number without a calculator		
	I can use these skills and my understanding of place value to multiply and divide with decimals		
	I can check results, considering whether these are reasonable		

Complete t	he following co	lculations. Show y	your working out				
1) 1.5 × 6 5	2) 7.6 × 3 3	) 12.5 x 7 4) 28	.7 × 4 5) 7.82	x 3 6) 20.56 x	Level 5		
7) Nine friends are going to Alton Towers.  (a) Individual tickets cost 17.93 each.  How much does it cost them altogether?  (b) A group ticket is priced at £146.70. How much will this cost them each?							
Solve these questions, showing your working out.							
1) 49.8 ÷ 2	2) 83.4 ÷ 6	3) 129.84 ÷ 4	4) 74.79 ÷ 9	5) 805.36 ÷ 8	Level 5		
6) 2 ÷ 0.2	7) 4 ÷ 0.1	8) 5 ÷ 0.2	9) 3 ÷ 0.04	10) 6 ÷ 0.05			

#### **NEGATIVE NUMBERS**

Name:

<u>Assessment Criteria:</u> Solve simple problems involving ordering, adding, subtracting negative numbers in context

1. The minimum temperature is 2 degrees below freezing on Tuesday

a) It falls by 6 degrees on Wednesday. What is the new temperature?

b) It rises by 12 degrees on Thursday. What is the final temperature?

\_\_\_\_\_

2. The temperature at the summit of five mountains is measured on a day in February. Place them in order of temperature from lowest to highest.

Snowdon -5°C

1.

Ben Macdui -14°C

2.

Scafell Pike 3°C

3.

Ben Nevis

4.

Cadair Idris -1°C

5.

3. Write a number in each box to make the calculations correct.

-11°C

+

+ = -8

- = -8

2. Match the calculation to the correct answer:

-3 - 5

-3 - 5

3 - -5

-3 + 5

3 + -5

2

-2

8

-8

Overall, I think my success level is:

Low High

Q						GAT			SERS	<b>5</b>	
	I can orde										
	I can add negative numbers in context  I can subtract negative numbers in context										
1			s, cor	nsiae	ering	wne	tner	tnes	se ar	re reasonable	
1 110	eed to pract										
_	41. 4										
Sec	ction C										11 =
1) /	1 - 2	2) 5	- 6		3/ 3	_ F		41	2 - 1	1	Level 5
1) 4	1 - 4 N - 5	4) J	_ 3		7) 3	- j		4)	د - 4 -2 -	† 6	
o) (	0 - 5 -7 - 5	10) 4	- 3 . n		/ J - 3	) - <u>/</u>	,	0)	ا – ک	1	
y) ·	-/ - 5	10) -4	+ 8		TT) -(	5 + 1(	J	12)	-3+	1	
13)	-9 + 4	14) 3	8		10) 4	+ :	0	16)	-ጏ -	- 9	
Sec	tion D									-	
											Level 5
Cop	y and comp	ete the	multi	plica	tion	table	e bel	ow.		7	
		х	-3	-2	-1	0	1	2	3		
		-3									
		-2									
		-1								,	
		0								7	
		1	-								
		2		-			-			-	
		3		<u> </u>							
4)	Magic squai										Level 5
	ok at the th	-						-2		4	
	py and fill in		_		bers		-	3		1	
Co	that each m	ow, colur	nn ar	ıd				2		4	
Co <sub> </sub>											
Co <sub>l</sub>	gonal adds i	up to 3.					_				
Col so dia	gonal adds i		the n	naaid	. sau	are				-2 5	-3
Col so dia			the n	nagio	sque	are,				-2 5	-3
Col so dia	gonal adds i		the n	nagio	sque	are,				-2 5 -5	-3

## **Task 4 Negative Numbers 2**

Level 5 question - Here is a list of numbers:

-7

-5

-3

-1

5

0 You can choose some of the numbers from the list and add them to find their total. For example,

6

- Choose two of the numbers from the list which have a total of 3 (a) 1 mark
- Choose two of the numbers from the list which have a total of -1 1 mark (b)
- Choose two other numbers from the list which have a total of 5 1 mark (c)
- What is the total of all eight of the numbers on the list? (e) 1 mark
- 3. Here is a list of numbers:

-7

-5

-3

-1

4

6

a) What is the total of all eight of the numbers on the list?

1 mark

b) Choose the three numbers from the list which have the lowest possible total. Write the three numbers and their total.

..... + ..... + ..... You must not use the same number more than once.

2 marks

Se	ction A					Level 5
l w	ork out the a	nswers i	to			
,	a) -3 -6	b) 5	5 7	c) - 4 3	d) - 4 + - 6	
Se	ction B					Level 5
1)	25 + <sup>-</sup> 10	8)	35 - <sup>+</sup> 14			
2)	<sup>-</sup> 1 + <sup>+</sup> 19	9)	<sup>-</sup> 17 + <sup>-</sup> 3			
3)	2 - *11	10)	<sup>-</sup> 15 - <sup>-</sup> 2			
4)	98 - *103	11)	118		•	
5)	24 - *11	12)	38 + <sup>-</sup> 29			
6)	⁺5 - ⁺19	13)	<sup>-</sup> 4 - <sup>-</sup> 27			

Level 5 question - Write a number in each box to make the calculations correct.

a)

7) 7 - 12

-8

b)

2 marks

-8

Level 6 question - Write the missing numbers in the table. The first row is done for you.

First number	Second number
3	6
5	-3
-8	

Sum of first and second numbers 9

Product of first and second numbers 18

1 mark 1 mark

#### Task 5

#### CHECKING ORDER OF MAGNITUDE

Name:

Assessment Criteria: Apply inverse operations and approximate to check answers to problems are of the correct magnitude.

1. Decide whether each of these approximations is correct. Show the ones you think are correct by circling them.

$$3.8\times7.1\approx40\qquad \qquad 41\div7.7\approx5$$

$$41 \div 7.7 \approx 5$$

$$0.93 \times 8.11 \approx 8$$

$$0.93 \times 8.11 \approx 8$$
 48% of 71.23  $\approx 35$ 

$$29\times38\approx120\qquad \qquad 68\div32\approx100$$

$$68 \div 32 \approx 100$$

2. Choose two of the approximations you checked in question 1. Show how you worked out whether or not the approximation was correct.

3. Carrie uses a calculator to work out  $34.2 \times 62.5 = 2137.5$ , but she is concerned that she might have mis-pressed a button while working this out. She has 2137.5 on her screen. What is the quickest way for her to check if she is correct?

	t solution for each of at helped you reach a		ations, writing down
1.9 <sup>2</sup> :	36.1	3.61	3.061
because			
63 ÷ 1.1:	57.2727	69.333	5.72727
because			
√27:	5.196	8.5	729
because			
Overall, I think my s	uccess level is:		Low High

Q	ORDER OF MAGNITUDE	<u>©</u>	8
	I can identify and apply the inverse operation(s) to check the answer to a calculation		
	I can choose and use an appropriate approximation to check the answer to a calculation		
	I can check the order of magnitude of a solution		
	I can check results, considering whether these are reasonable		

#### **PLACE VALUE**

Name:

<u>Assessment Criteria</u>: Use understanding of place value to multiply and divide whole number and decimals by 10, 100, 1000 and explain effect.

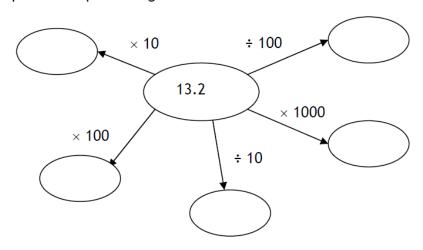
1. Chris writes '2 x 10 = 20, and 3 x 10 = 30, so  $2.5 \times 10 = 2.50$ '. Is Chris correct? Explain your answer.

2. Hazel says, 'when you multiply a number by 100, the digits move two places to the left'.

Tim says, 'when you multiply a number by 100, the decimal point jumps two places to the right'.

Who is correct?

3. Complete the spider diagram



4. Fill in the gaps in the following calculations:

$$3 \div _{---} = 0.03$$

$$0.3 \div = 0.003$$

Overall, I think my success level is:

Q	PLACE VALUE	☺	$\otimes$
	I can multiply whole numbers by 10, 100 and 1000		
	I can divide whole numbers by 10, 100 and 1000		
	I can multiply decimals by 10, 100 and 1000		
	I can divide decimals by 10, 100 and 1000		
	I understand the effect of multiplying and dividing by 10, 100 and 1000		
	I can draw simple conclusions of my own and give an explanation of my reasoning		
	I can check results, considering whether these are reasonable		

Section	n B		Level 5
1) Wo	rk out		
•	2 x 1000 b) 0.75 x 10	00 c) 36.4 x 10	
	7,2 ÷ 1000 e) 15,1 ÷ 100	-	
	and complete these calc		
a) _	x 0.5 = 50	÷ = 0.084 c) 103 ÷ = 1.03	
Section	n C		Level 6
1)	a) 7 × 0.1	2) a) 6 ÷ 0.1	
	b) 6 × 0.01	b) 700 ÷ 0.01	
	c) 70 × 0.01	c) 9.9 ÷ 0.1	
	d) 56 × 0.1	d) 0.67 ÷ 0.01	
	e) 7.89 × 0.01	e) 0.005 ÷ 0.01	
	f) 0.056 × 0.001	f) 4.04 ÷ 0.001	
	q) $6.089 \times 0.01$	g) 89000 ÷ 0.0001	
	h) 8200 × 0.0001	h) 40 ÷ 0.01	
) Use	the numbers in the box t	to complete these multiplications. You can use	
	ımber in the box once on		
		0.0062 62	
		6.2 620	
		0.62 0.062	
) 62	x 0.1 = b) 6.2	2 × 0.1 = c) 6.2 × 0.01 =	
		62 x 0.01 = f) 6200 x 0.01 =	

#### **ROUNDING AND ORDERING**

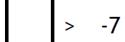
Name:

<u>Assessment Criteria:</u> Round decimals to the nearest decimal place and order negative numbers in context

- 1. Round each of the following numbers to the required number of places:
  - a) 2.637421 to 1 decimal places
  - b) 2.73762 to 2 decimal places
  - c) 3.44552 to 3 decimal places
  - d) 11.95 to 1 decimal places
- 2. Order the following temperatures from coldest to warmest

Moscow, Russia	7°C
Oymaykan, Russia	-84°C
Vostok, Antartica	-115°C
Rogers Pass, Montana, USA	-54°C
Fort Selkirk, Canada	-55°C
Northice, Greenland	-12°C
Painswick, Gloucestershire, UK	6°C

3. Put a number in each box to make the statement true:





Overall, I think my success level is:

Q	ROUNDING AND ORDERING	<u>©</u>	8
	can round numbers to 1 decimal places		
	can round numbers to 2 decimal places		
	can round numbers to 3 decimal places		
	<u> </u>		
	can order negative numbers		
	can show understanding of situations by describing them mathematically sing symbols, words and diagrams		
Inee	d to practise		•
) Rou	nd these to 1 decimal place (1dp)		
3.478			
	=		
0.352			
) 1.273			
6.971			
2.719			
) 5.182			
) 0.082 ) 12.32			
0) 3.75			
0) 3.70	82 =		
3) Roui	nd these to 2 decimal places (2dp)		
) 4.562			
) 6.287			
3) 1.268			
32.48			
\ ∩ 475			

5) 0.475281 = \_\_\_\_\_\_\_ 6) 1.2983 = \_\_\_\_\_\_ 7) 0.071 = \_\_\_\_\_

9) 41.323132 = \_\_\_\_\_

= \_\_\_\_\_

C) Round these to the number of decimal

placesgiven

1) 5.283 (2dp) = \_\_\_\_\_\_\_

2) 0.871 (1dp) = \_\_\_\_\_\_

3) 9.812 (2dp) = \_\_\_\_\_\_

4) 1.278 (2dp) = \_\_\_\_\_\_

5) 21.72819 (1dp) = \_\_\_\_\_\_

6) 3.2819 (1dp) = \_\_\_\_\_\_

7) 3.2419 (2dp) = \_\_\_\_\_\_

8) 0.95276 (1dp) = \_\_\_\_\_\_

9) 2.19302 (2dp) = \_\_\_\_\_\_

10) 3.957829 (3dp) = \_\_\_\_\_\_

10) 3.957829 (3dp) = \_\_\_\_\_

8) 1.2753

10) 2.99653

placesgiven

### **TASK 8 Ordering Decimals**

Write the following decimals in order, smallest to largest:

- 1) 5.34, 5.912, 5.3147, 5.98, 5.316 2) 7.812, 7.082, 8.071, 7.821, 7.128
- 3) 4.9, 4.98, 4.8, 4.989, 4.898
- 4) 9.1, 9.01, 9.101, 9.0101, 9.1101
- 5) 13.131, 1.3131, 131.31, 1.3113, 1.1313 6) 3.4115, 3.415, 3.45, 3.41115, 3.4

In these questions, don't include the numbers given when you calculate your answers. TIP: Draw a decimal number line to help you

- 1) How many 1 digit decimals are there between
  - i) 1,3 and 1,8
- ii) 7.4 and 8.5
- iii) 3.2 and 8.6
- iv) 9 and 11
- 2) How many 2 digit decimals are there between
  - i) 6.42 and 6.49
- ii) 3.04 and 4.16
- iii) 1.9 and 2.0
- iv) 3 and 3.5

#### Decimal Unscramble

Find the larger number in each pair of decimals and write down its corresponding letter. Rearrange the letters to form a mathematical word.

1)				2)			
D	0.09	0.9	Ε	R	1.5	1,15	Е
Х	0.4	0.72	L	D	2,5	2.55	Е
Α	0.54	0.5	U	Т	2.7	2.8.	Т
Т	0.6	0.32	K	L	3.13	3.3	K
I	0.5	0.65	Ν	Α	4.2	4.03	Е
В	0.38	0.7	I	C	4.65	4.7	В
G	0.43	0.4	С	С	4.63	4.6	Α
Α	0.52	0.7	R				

#### NUMBER PATTERNS AND RELATIONSHIPS

Name:

Assessment Criteria: Recognise and use number patterns and relationships

1. Look at the 1 to 100 grid here. A pattern of numbers has been shown by shading the square in yellow.

Imagine the pattern was continued. Would the number 124 be shaded? Explain your answer.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

2. Find two prime numbers that add together to make 98.

\_\_\_\_\_ and \_\_\_\_\_

- 3. Write down the next two numbers in each of these number patterns:
  - (a) 25, 20, 10, 5, \_\_\_, \_\_\_
  - (b) 0.7, 1.0, 1.3, 1.6, \_\_\_\_, \_\_\_
  - (c) 1, 4, 9, 16, \_\_\_, \_\_\_
- 4. Use each of the numbers 1, 2, 3, 4 and 5 to correctly complete the following sentences:

\_\_\_ is a factor of \_\_\_

42 is a multiple of \_\_\_\_

\_\_\_ is a prime number

\_\_\_ is not a prime number

- 5. Fill in the gaps in these sequences:
  - (a) 0.1, 0.3, \_\_\_\_, 0.7, \_\_\_\_, 1.3
  - (b) \_\_\_\_, 6, \_\_\_\_, 12, \_\_\_\_, \_\_\_

Overall, I think my success level is:

Low High

Q	NUMBER PATTERNS AND RELATIONSHIPS	©	$\otimes$
	I can recognise and use a number pattern		
	I can recognise and use prime numbers		
	I can recognise and use factors and multiples		
	I can continue number sequences		
	I can identify and obtain necessary information to carry through a task and solve mathematical problems		
	I can draw simple conclusions of my own and give an explanation of my reasoning		
i ne	eed to practise		

1 a) The rule to get the next number in this number chain is multiply by 4	Level 5
then subtract 6. Fill in the two missing numbers.	
, 6, 18, 66,	
b) This number sequence has a different rule.	
2.7, 5.4, 10.8, 21.6, 43.2	
Write what that rule might be.	

4) Investigation	Level 5
Copy and complete this sequence:	
1,,, 10,	
How many different sequences can you find that will fit in?	
5) There are three different sequences jumbled up here:	
1, 4, 5, 8, 8, 8, 11, 14, 15, 16, 17, 22, 29, 32, 64	
Find the three sequences. Describe them in words.	
These clues may help:	
The second term in each sequence is the same.	
One of the sequences doubles each time.	
One of the sequences adds 7 each time.	

#### SIMPLE FORMULAE

Name:

<u>Assessment Criteria:</u> Construct, express in symbolic form, and use simple formulae involving one or more operations.

1. The following function machine adds 8 to any numbers that is input.



- a) What is the output if the input is:
- (i) 5

(ii) **7** 

- b) What is the input if the output is:
- (i) 26

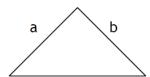
(ii) 52



c) The input is now called G and the output is now called H. Write a formula linking G and H.

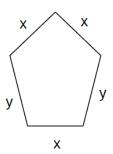
2. Write a formula for, P, the perimeter of each of the following shapes. Write your answers in the simplest form.

a)



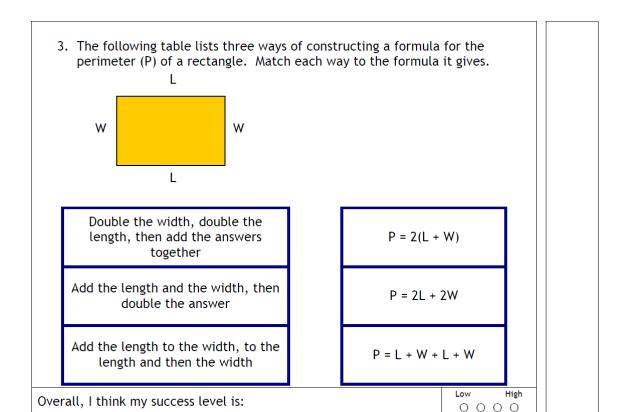
C

b)

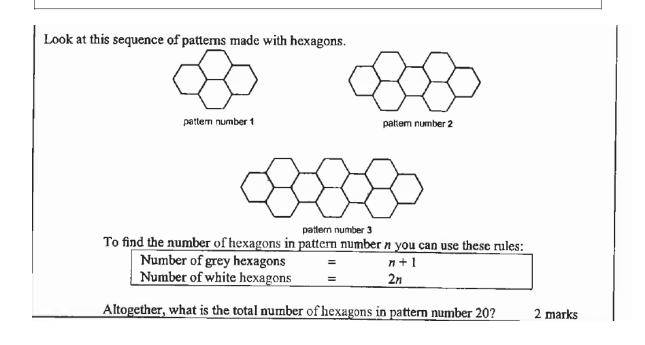


c) If x = 6 and y = 11, what is the value of P for the shape above?

P = \_\_\_\_\_



Q	SIMPLE FORMULAE	©	8
	I can understand the use of letters to represent numbers		
	I can construct simple formulae		
	I can substitute numbers into simple formulae		
	I can simplify simple formulae		
	I can multiply out brackets in simple cases		
	I can show understanding of situations by describing them mathematically using symbols, words and diagrams		



## Task 11 Nth term

1) These are the nth terms of a number of sequences. For each sequence	Level 5
write out the first five terms.	
a) n+4 b) n-1 c) n+3 d) n+12 e) 7n f) 3n	
g) 3n - 2 h) 4n + 7 i) 2n - 2	
2) Sequences	Level 6
a) Match each <i>n</i> th term rule to its number sequence.	
nth term Number sequence	
4, 7, 12, 19,	
$(n+1)^2$ 4, 8, 12, 16,	
n <sup>2</sup> + 3 4, 9, 16, 25,	
n (n + 3) 4, 10, 18, 28,	
Write the first four terms of the number sequence using the nth term	
rule below.	
Talo Solow,	
n³+3	
4) You can make 'huts' with matches.	Level 5
$\wedge \wedge \wedge \wedge \wedge$	
(	
1 hut needs 2 huts need 3 huts need	
5 matches 9 matches 13 matches	
A rule to find how many matches you need is m = 4h + 1	
m stands for the number of matches and $h$ stands for the number of huts.	
a) Use the rule to find how many matches you need to make 8 huts.	
b) I use 81 matches to make some huts. How many huts do I make?	

### MyMaths: Here are the MyMaths tasks for level 5.

Your teacher will instruct which of these to do.

Alternatively can use MyMaths to help with topics you are unsure of and to revise topics.

			%			
Topic	How to fire	Scored	Self Assessment			
Negative Numbers 2	Number →	Counting and Place Value		(1)	<u></u>	(3)
Add and Subtract Decimals	Number →	Decimals		$\odot$	☺	8
Multiply Decimals by 10 and 100	Number →	Decimals		$\odot$	☺	8
Multiply Decimals by Whole Numbers	Number →	Decimals		$\odot$	☺	8
Multiply Two Decimals	Number →	Decimals		$\odot$	☺	8
Divide Decimals by Whole Numbers	Number →	Decimals		(3)	<u>:</u>	8
Rounding Decimals	Number →	Estimation and Accuracy		$\odot$	☺	8
Decimal Places	Number →	Estimation and Accuracy		$\odot$	☺	8
Multiply Triple Digits	Number →	Multiply divide written		(3)	<u>:</u>	8
Long Division	Number →	Multiply divide written		(3)	<u></u>	(3)
HCF	Number →	Powers and Roots		0	<b>:</b>	(3)
LCM	Number →	Powers and Roots		(i)	<u></u>	(3)
Rules and Formulae	Algebra →	Expressions and Formulae		☺	<b>(1)</b>	8

#### Parent note about this booklet

This booklet contains several level tasks available for homework along with MyMaths tasks.

The teacher will instruct which level tasks students should complete each week.

Students can do extra MyMaths tasks not set by the teacher at any time It is not intended that the whole booklet should be completed as one homework.

The booklet must be kept safely and any lost booklets will require £1 for a new copy.