Benjamin Britten Academy of Music and Mathematics

MATHEMATICS HOMEWORK BOOKLET

Year 7 Book C

SUMMER

NAME:

Mathematics homework

Contents

How does it work?

- One homework will be set a week
- The set and due date for each homework will be written on this page
- Some homework will need completing on this booklet, others on the internet
- If you need help logging onto a website, you need to see your class teacher
- If you need help with the homework task, you must speak to your teacher before the due date
- The school runs a homework club. Speak to your teacher to find out which day.
- If you loose your booklet they can be found on your class google classroom or on the schools website.
- Your teacher will give you information on where to find the answers.

Completing your homework

All homework tasks need to be completed in this booklet or on a specific website.

There are also **answers** for all booklet tasks. Your teacher will either upload these to your class google classroom and expect you to mark it in class. Speak to your teacher if you are unsure.

Remember - if you need help, you must speak to your teacher **before** the due date.

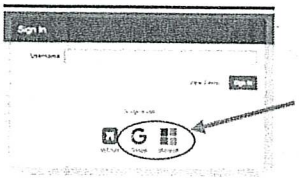
Login details

Below are the log in instructions you will need in order to access and complete some of the homework tasks in this booklet.

If you have any issues logging in, you must speak to your teacher as soon as possible.

To log in, all students should use the **Single Sign-on service** through either Google or Microsoft. Click either the Google or Microsoft buttons (see below) and then enter you school email address and school computer login password.

e.g. 25bloggsj@benjaminbritten.school and password which could be: BlueCat123 (example)



LOOK

If you see the logo above next to a task, you can type the clip number into MathsWatch for extra help!

Watch the video and make notes, then try the homework task again. If you still need help, then speak to your maths teacher at school.

HOMEWORK 1: NUMERACY

MENTAL STRATEGIES - do these in your head

Literacy challenge – Missing letters!

Below are 3 keywords in maths, but some of the letters are missing. Can you fill the blanks?

HU _ D _ ED

KI _ _ ME_ RE

IS _ SC _ _ ES

LOOK

N3a, N3b

Q	Question	Answer
1	□ + 3 = 5	
2	15 + 85	
3	Halve 2	
4	196 – 10	
5	188 + □ = 260	
6	62 = 32 + □	
7	604 – 601	
8	8 × 4 = 32, so 32 ÷ 4 = □	
9	Write 05:48 in 12 hour clock format	
10	From 22:06, how many minutes until 22:28?	
	Total out of 10	

Q	Question	Answer
1	4 × 4 = □	
2	8 ÷ 4 = □	
3	8 × □ = 16	
4	5 ÷ □ = 1	
5	6 × 8 = □	
6	9 ÷ 3 = □	
7	□ × 6 = 24	
8	□ ÷ 2 = 10	
9	7 × 6 = □	
10	70 ÷ 10 = □	
	Total out of 10	

2	4	
3	6	+

3	7	
5	3	+

4	9	
3		+
	0	

	3	
3		+
7	0	

4		
	4	+
7	0	

5	3	
		+
8	0	

2	4	
	6	+
4		

	9	
3	1	+
6		

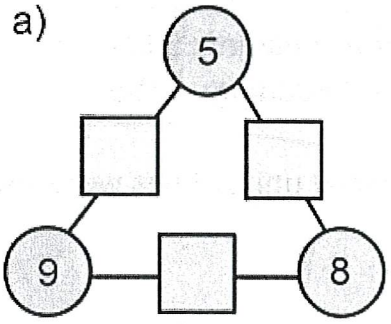
Use your mental arithmetic skills

arithmagons

Complete the arithmagons so that the pink circles add together to make the blue squares in between them.

LOOK N3a

a)



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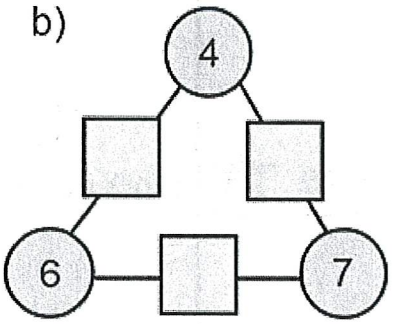

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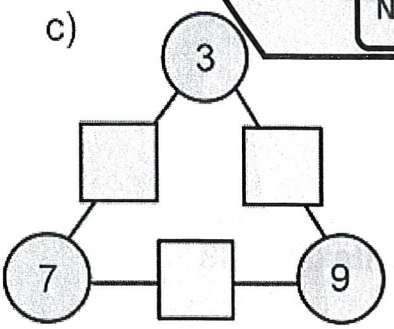

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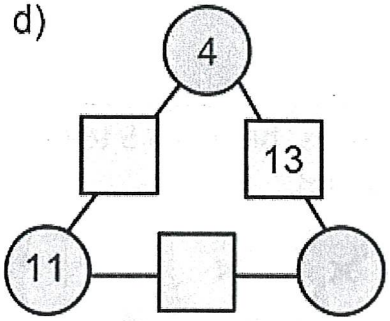

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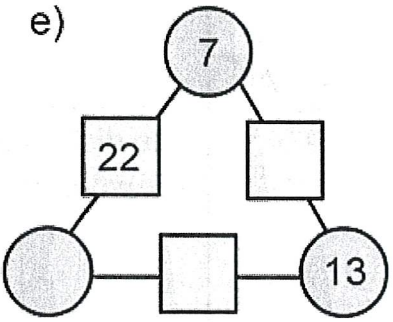

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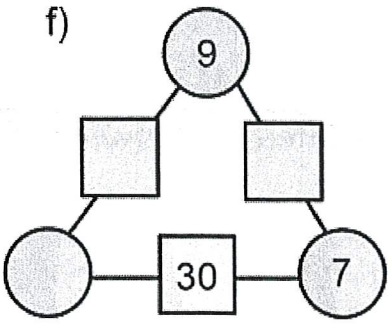

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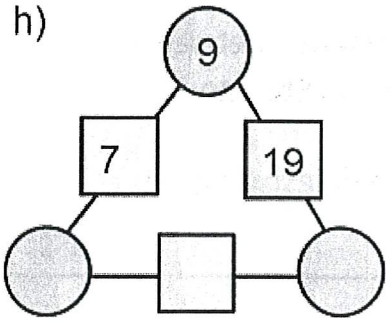

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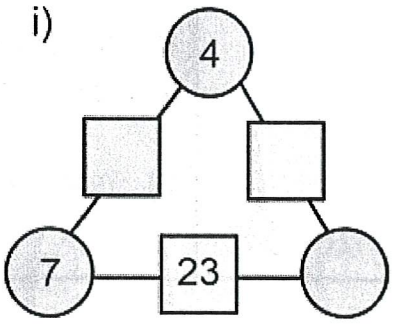

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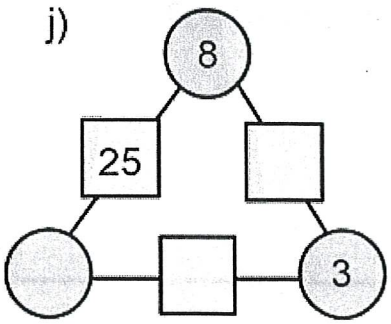

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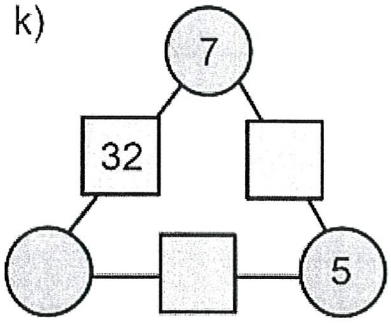

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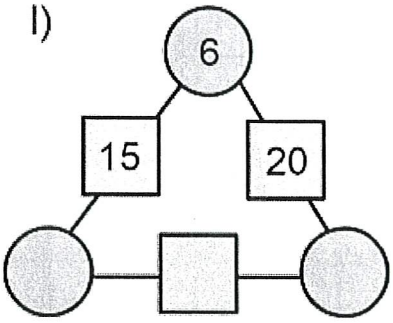

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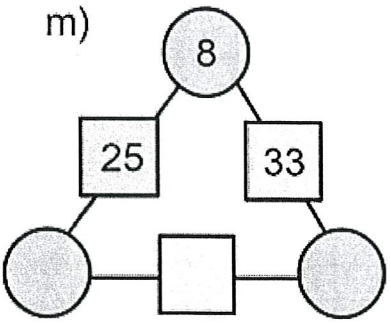


HOMEWORK 2: CORE SKILLS

Calculate $63 + 38$

Bronze ★

Calculate $63 - 38$

Bronze ★

Find the difference between 804 and 357.

Bronze ★

Find the sum of 634 and 173.

Bronze ★

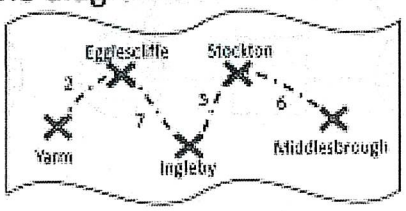
Below is a customer's gas meter readings.

Previous Reading: 5397
Current Reading: 5786

Work out how many units of gas were used.

Silver ★

The distance, in miles, between 5 towns is shown in the diagram.

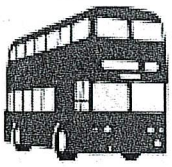


Work out the distance between

a) Egglescliffe and Stockton

b) Yarm and Middlesbrough

Silver ★

Calculate 14×9 Bronze ★	Hunter needs to make 420 cakes for a wedding. Each batch of cake mix makes 12 cakes. How many batches will he need to make?
Calculate $399 \div 7$ Bronze ★	 Silver ★
Find the product of 24 and 32 Bronze ★	A school takes 7 coaches of students to the cinema as a reward. Each coach holds 42 passengers and is full. How many students went to the cinema?
Calculate $3255 \div 15$ Bronze ★	 Silver ★

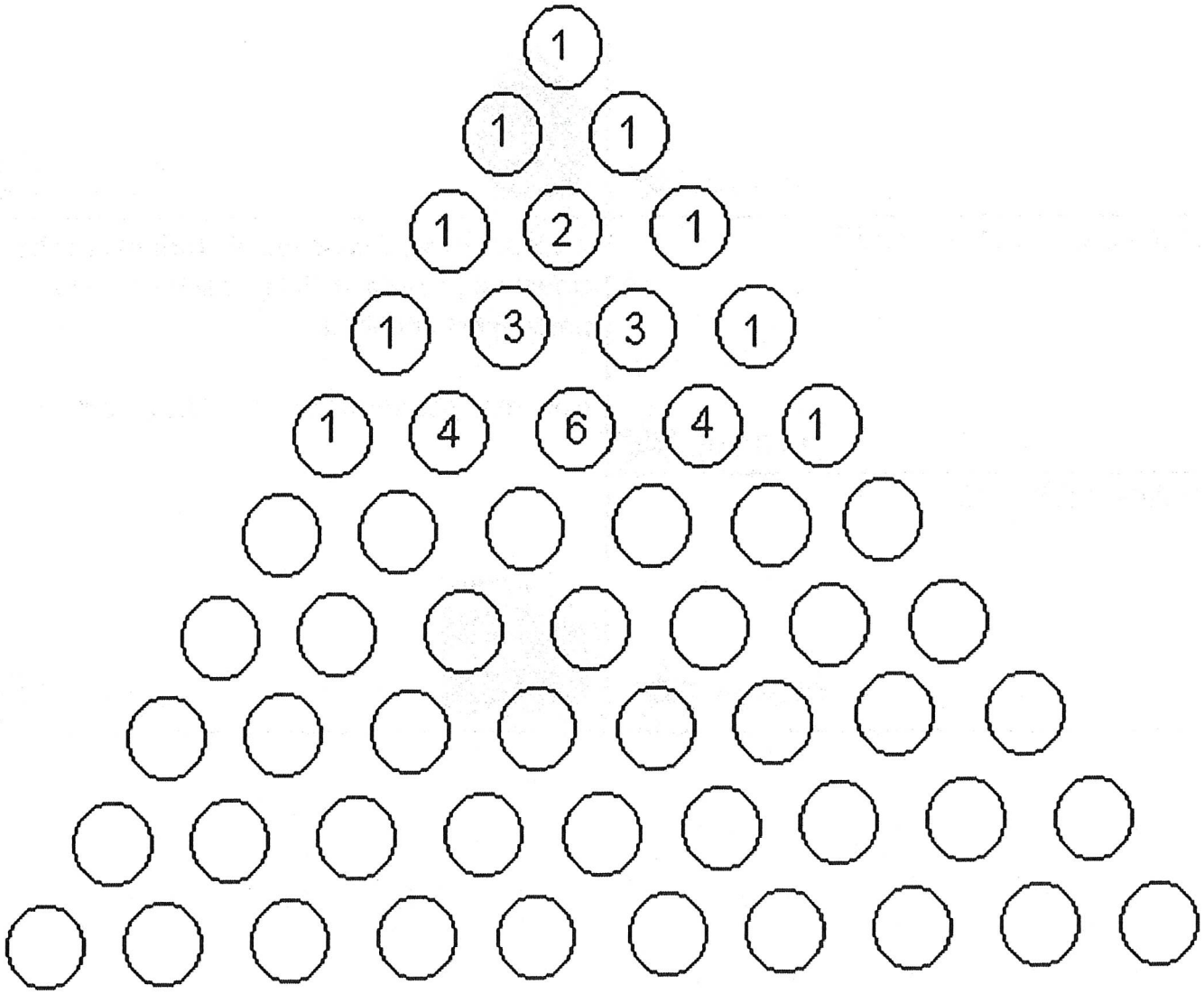
HOMEWORK 3: RESEARCH TASK

To research Pascal's Triangle you can use the internet or a book to find the answers to the following questions.

Remember, if you need to, you can use the computers in the breakout area at school .

This picture shows the first five lines of Pascal's Triangle.

Can you work out how it is made?



Each number is the total of the two numbers above it.

Use this fact to calculate the remaining 5 rows of Pascal's Triangle.

Can you see any patterns?

How are the odd numbers arranged in the triangle?

How are the even numbers arranged in the triangle?

What do you notice about the diagonals?

What type of numbers can you find in the 3 diagonal?

Who was Pascal and what can Pascal's Triangle be used for?

Challenge:

Investigate the totals of the numbers in each horizontal row. Is there a pattern?

Can you predict the next total?

HOMEWORK 4: NEGATIVE NUMBERS

LOOK
N19B

learn by heart

Product: the result of multiplying. For example, the product of 5 and 3 is 15

examples

-3 × -4 = 12	-3 × 4 = -12	3 × -4 = -12	-12 ÷ -6 = 2	-12 ÷ 6 = -2	12 ÷ -6 = -2

exercise 1d

1. Calculate:

a) -3 × -5	d) 7 × -2	g) 15 ÷ -3	j) -12 ÷ -3
b) -2 × 5	e) -1 × 4	h) -15 ÷ 3	k) 10 × -2 × -3
c) 1 × -18	f) 0 × -12	i) -15 ÷ -3	l) (5 × -4) ÷ -10

2. Which of these have a **positive** answer?

a) -3 × -3	b) 6 ÷ -2	c) 10 × -2	d) 50 ÷ -2

3. True or False:

a) -100 ÷ 2 = 50	b) -25 ÷ 5 = -5	c) -7 × -7 = 49

4. Fill in the blanks:

a) 6 × _____ = -24	c) 15 ÷ _____ = -3	e) -4 × _____ = -16
b) 12 ÷ _____ = 3	d) -8 × _____ = 24	f) 30 ÷ _____ = -10

challenge: Calculate -4 + 3 × -5

Problem solving!

Apply your core skills to the challenge questions below...

Complete these multiplication grids:

a)

×	-4	2	3
-1			
-5			
10			

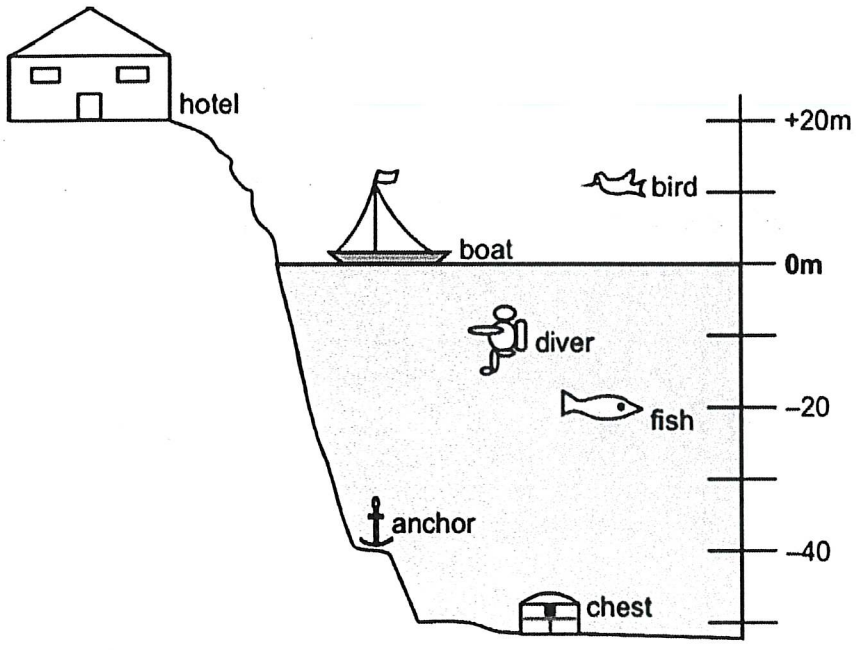
b)

×	-2	-5	
		-20	
	12		
3			-18

c)

×		-10	
	-6	-30	
-2			-200
	0		

Ali drew a picture to show what there is above and below the sea at Aber.



LOOK
N18

The anchor is at about **–40m.**

(a) What is at about **+10m**?

(b) What is at about **–10m**?

(c) What is about 30m higher than the chest?

HOMEWORK 5: EXPRESSIONS

substitution (positive numbers)

examples

Given $y = 3$, evaluate:

$y + 7$

$= 3 + 7$
$= 10$

$2y + 5$

$= 2 \times 3 + 5$
$= 6 + 5$
$= 11$

$2(y + 5)$

$= 2 \times (3 + 5)$
$= 2 \times 8$
$= 16$

exercise 6h

1. Given that $a = 3$, evaluate:

a) $10a$

e) $4a + 2$

i) $5 - a$

b) a^2

f) $7 + a$

j) a^3

c) $\frac{a}{3}$

g) $7a$

k) $4 + 2a$

d) $5a - 1$

h) $2a + 5$

l) $3a - 2$

Problem solving!

Apply your core skills to the challenge questions below...

Algebra in Words

Match expressions on the left with their descriptions on the right.

1 $\frac{a}{2} + 2b$	A a multiplied by 2
2 $a + 2$	B a squared
3 $3b$	C Half of a
4 $\frac{b}{3} - 2a$	D 2 more than a
5 $a - 2$	E 2 less than a
6 $2a$	F The sum of a and b
7 $b - 2$	G a multiplied by b
8 $b - a$	H 2 subtract b
9 $\frac{a}{2}$	I b divided by 3
10 ab	J b subtract 2
11 $2 - b$	K b multiplied by 3
12 a^2	L One quarter of b
13 $\frac{b}{4}$	M 3 lots of a
14 $3a$	N a cubed
15 a^3	O a minus b
16 $a^2 - b$	P b subtract a
17 $\frac{b}{3}$	Q 3 less than b
18 $a + b$	R a squared minus b
19 $b - 3$	S Half of a added to 2 lots of b
20 $a - b$	T One third of b minus 2 lots of a

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

HOMEWORK 6: MATHSWATCH

For this week's homework, your teacher will set you a task to complete on the website MathsWatch. The task will be based on the content you have learnt over the past half term in your mathematics lessons. You can use the space on the next page to do any working out if you need to.

To log in, all students should use the **Single Sign-on service** through either Google or Microsoft. Click either the Google or Microsoft buttons (see below) and then enter you school email address and school computer login password.

e.g. 25bloggsj@benjaminbritten.school and password which could be: BlueCat123 (example)

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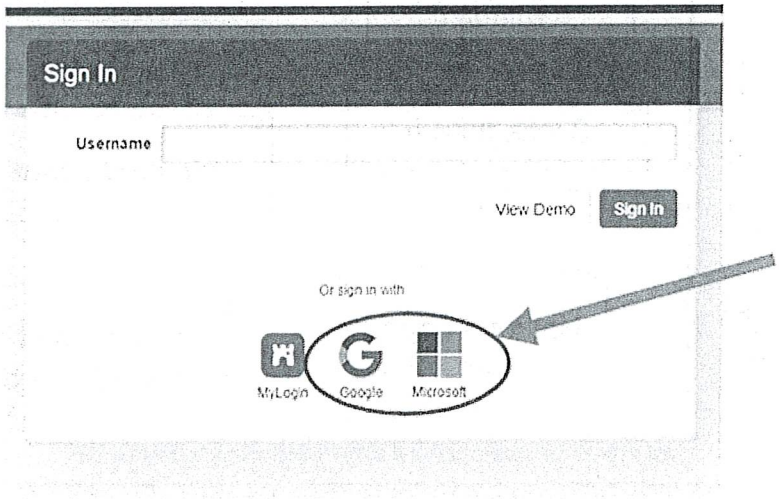
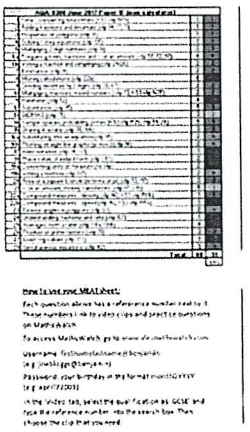


Additional working out space:

Don't forget about your MEAT SHEETS

The purpose of your MEAT sheet is to identify both strengths and areas for development for you to work on independently using MathsWatch.



HOMEWORK 7: DOUBLING

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18

double

examples

Double 64

$= 60 \times 2 + 4 \times 2$
$= 128$

Double 87

$= 80 \times 2 + 7 \times 2$
$= 160 + 14 = 174$

mental maths: quick doubling

Work out:

a) 14 × 2

b) 28 × 2

c) 36 × 2

d) 48 × 2

e) 63 × 2

f) 29 × 2

g) 88 × 2

h) 47 × 2

i) 16 × 2

j) 39 × 2

k) 58 × 2

l) 98 × 2

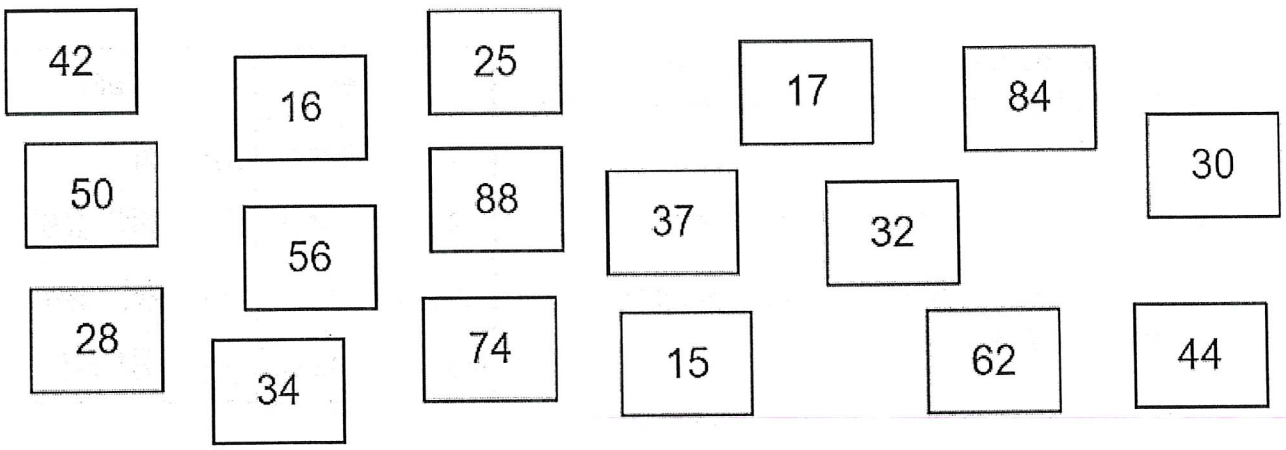
LOOK
N5

Complete these number sequences by doubling:

a)	4	8	16			
b)	5	10	20			
c)	6	12	24			
d)	7	14	28			
e)	8	16	32			
f)	9	18	36			
g)	10	20				
h)	12	24				

What's left?

Match each number to its double. Which number is left on its own?



HOMEWORK 8: STATISTICAL DIAGRAMS

Tally Table: A way of collecting data so that it is easy to see how many people are in each group.

Option	Tally	Total
French	𝍸 I	6
German	𝍸 𝍸	10

Each group of 5 is completed with a diagonal line

1. Danielle asks some students in her class about their favourite animal.
A list of their responses is below.
a) Record the results in a tally table.

Dog	Fish	Dog	Dog
Bird	Dog	Cat	Dog
Dog	Fish	Cat	Dog
Bird	Cat	Cat	Cat

Animal	Tally	Total
Dog		
Cat		
Bird		
Fish		

b) How many people did Danielle ask as part of her survey?

2. Kyle collects some information about the number of people that live in each house on his street.

Record this raw data in the frequency table:

4	2	1	4	2
5	1	2	3	3
4	4	5	2	1

Number of people (x)	Frequency (f)

3. Peter asks people at his tennis club who their favourite player is. The results are shown in the tally table.

Player	Tally
Andy Murry	𝍸 III
Rafael Nadal	𝍸 𝍸 𝍸 II
Roger Federer	𝍸 𝍸 𝍸 I
Novak Djokovic	𝍸 𝍸 III

a) How many people said Andy Murray?

b) How many **more** people said Rafael Nadal than Andy Murray?

c) How many people did Peter ask in total?

True or False?

A group of people took part in a quiz. Table 1 shows the scores of everyone who played. From the statements below, shade FOUR that are DEFINITELY TRUE

A Twelve people took part in the quiz

B Nobody scored 23 marks

C Everybody scored more than 19

D Twenty four people scored 5 marks

E The lowest score was 0

F The quiz was out of 25

G At least one person scored more than 24 marks

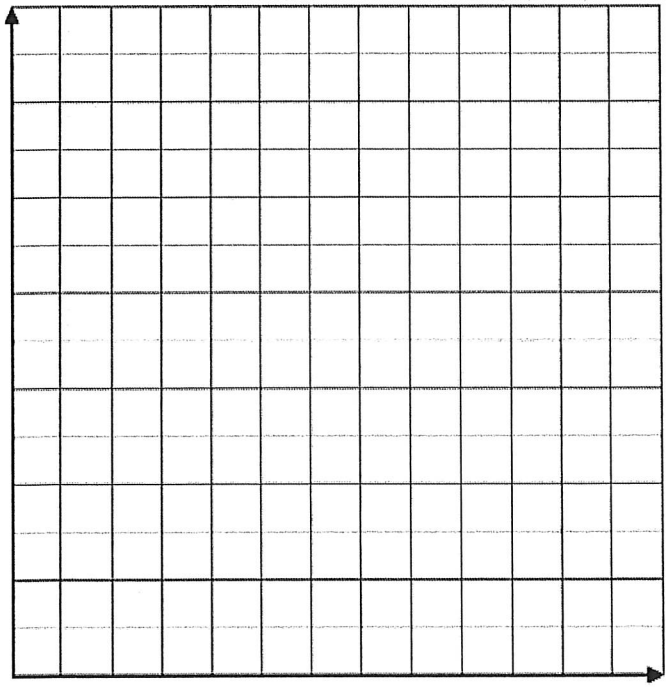
H The most common score was 24 points

Table 1

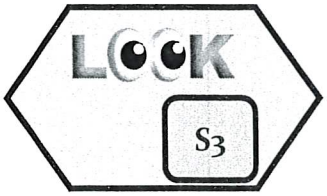
Score	Frequency
20	3
21	0
22	1
23	2
24	5
25	1

Jenny asked her classmates how many people lived in their household.

Draw a bar chart to show the results.



Number of People	Frequency
1	0
2	1
3	9
4	12
5	3
6+	3



HOMEWORK 9: FAMOUS MATHEMATICIANS

Ada Lovelace and **Katherine Johnson** made significant contributions to their fields. Their work has and will affect the lives of many for years to come. Using the internet or books to help you, answer the following questions. You may present your answers as full sentences, bullet points, or even as a storyboard or video. Be creative!

Ada Lovelace

1. What year was she born?
2. Ava Lovelace never met her father, what was she famous for?
3. What is she regarded as being one of the first of?
4. In which film did a computer scientist communicate with her in the past?
5. When is Ava Lovelace Day celebrated?
6. Which famous author was she friends with?
7. Why was her work significant?
8. What would life be like without her contributions to maths?

Answer here:

Katherine Johnson

1. What year was she born?
2. What was her full name?
3. How old was she when she graduated high school?
4. In 2015 Barack Obama awarded her which medal?
5. What did she calculate for NASA?
6. Which space missions was she involved in?
7. Why was her work significant?
8. What would life be like without her contributions to maths?

Answer here:

Check out the Hidden Figures movie, a dramatized version of her experiences at NASA. IMDB rating 7.8/10 , 93% Rotten Tomatoes.

HOMEWORK 10: HALVING

examples

1	2	3	4	5	6	7	8	9	10
0.5	1	1.5	2	2.5	3	3.5	4	4.5	5

half

78 ÷ 2

Half of 70 = 35
Half of 8 = 4
Half of 78 = 39

75 ÷ 2

Half of 70 = 35
Half of 5 = 2.5
Half of 75 = 37.5

You may want to use the bus stop

mental maths: halving

Calculate:

a) 26 ÷ 2

b) 48 ÷ 2

c) 60 ÷ 2

d) 68 ÷ 2

e) 84 ÷ 2

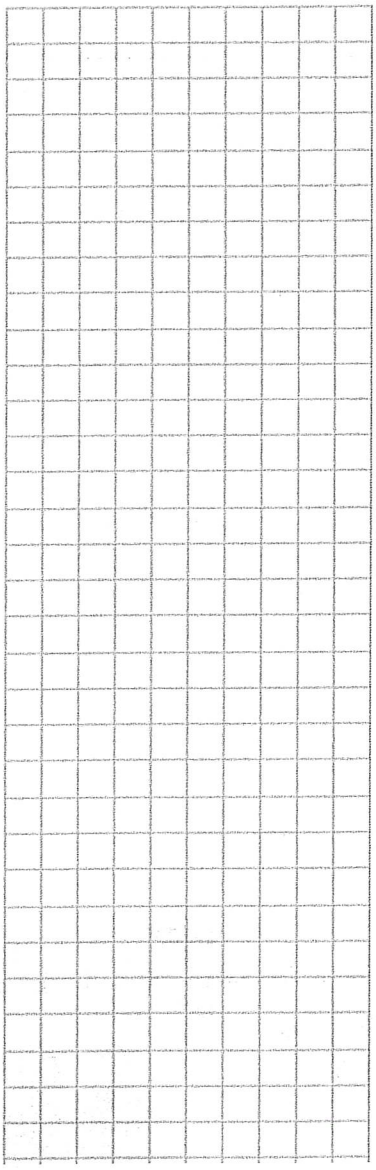
f) 100 ÷ 2

g) 76 ÷ 2

h) 38 ÷ 2

i) 94 ÷ 2

j) 122 ÷ 2



Calculate:

a) 3 ÷ 2

b) 5 ÷ 2

c) 7 ÷ 2

d) 9 ÷ 2

e) 13 ÷ 2

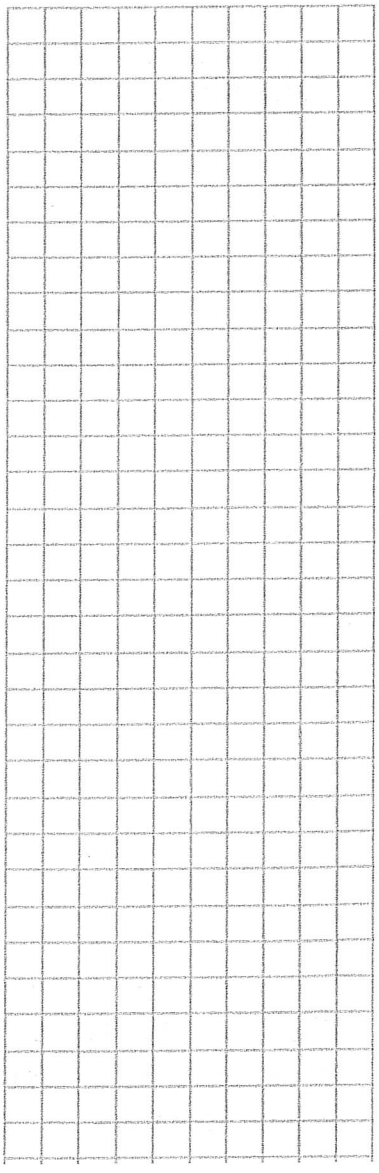
f) 17 ÷ 2

g) 21 ÷ 2

h) 25 ÷ 2

i) 29 ÷ 2

j) 31 ÷ 2



mental maths: half way between

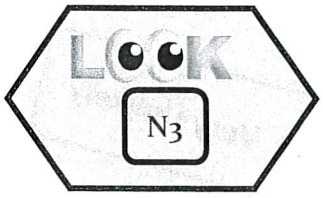
examples

Find the number half way between 10 and 16

10 + 16 = 26
Half of 26 = 13

Find the number half way between 24 and 27

24 + 27 = 51
Half of 51 = 25.5



Find the number half way between:

a) 3 and 7

b) 2 and 6

c) 9 and 15

d) 8 and 12

e) 14 and 20

f) 15 and 20

g) 27 and 32

h) 17 and 21

i) 1 and 8

j) 3 and 7

Remember...
a half is the same as:

- ÷2
- 0.5
- 50%

1) 4 x 0.5 =

2) 8 x 0.5 =

3) 9 x 0.5 =

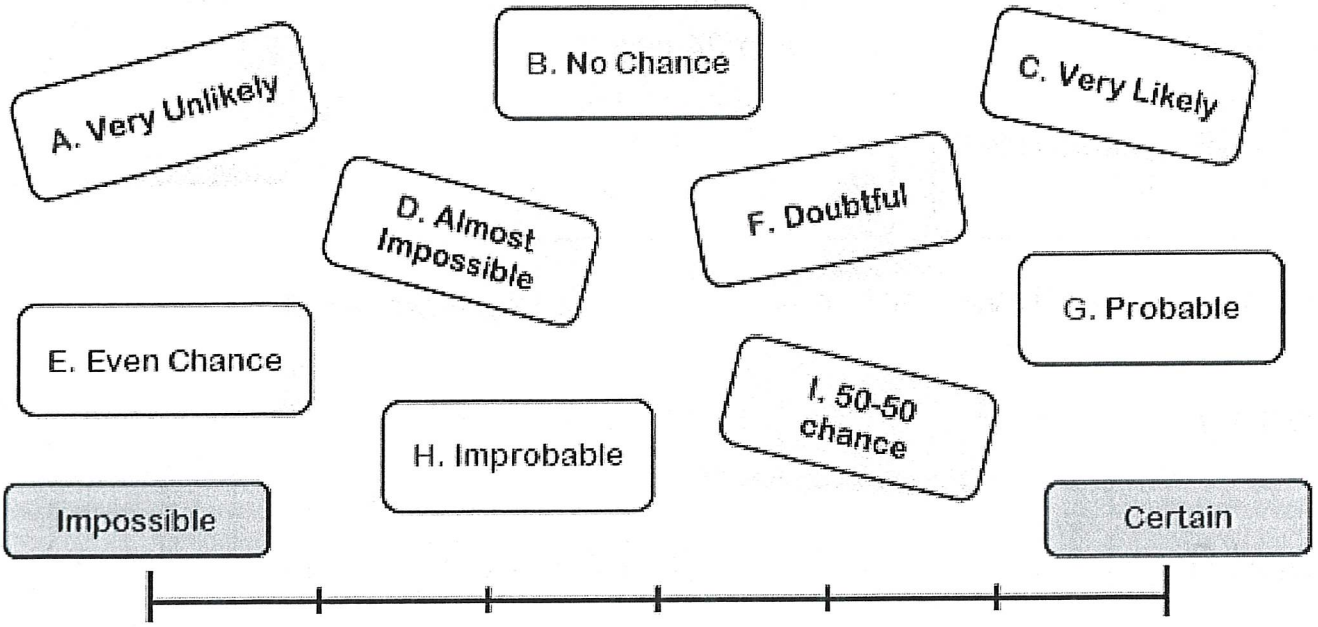
4) 10 x 1.5 =

5) 2.5 x 6 =

HOMEWORK 11: PROBABILITY

LOOK P1

Place the words somewhere on the scale, going from impossible to certain.



Section B

Decide what the chance of each event is by putting the letters in the correct place.

A. It will snow in London in June.	E. The person next to you has three brothers.
B. You will blink today.	F. You add a number to 8 and get 5.
C. The next person to walk in the room will be male.	G. The pregnant lady on the bus has a girl.
D. Your teacher will come to school tomorrow.	H. You will see a pigeon today.

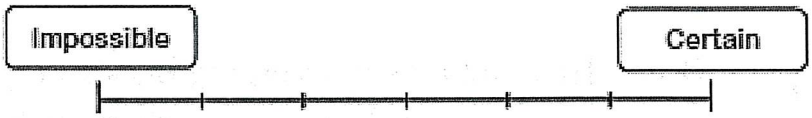
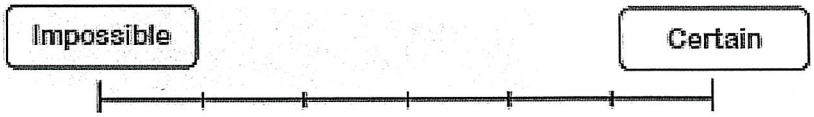
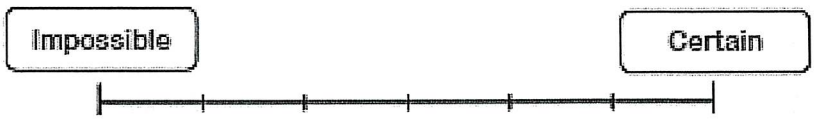
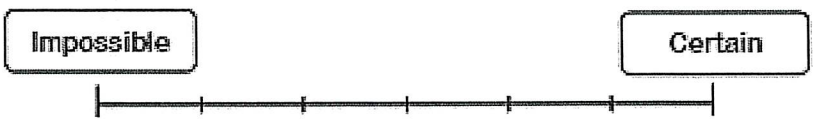
Impossible	Very Unlikely	Unlikely	Even Chance

Likely	Very Likely	Certain

Problem solving!

Apply your core skills to the challenge questions below...

Put an arrow on each scale to show the chance of the event happening.

You will get tails if you flip a fair coin.	
You will get a 7 if you roll a fair dice.	
You will get a 6 if you roll a fair dice.	
You will get a head or a tails when you flip a fair coin.	
You will pick the letter E if you randomly pick letters from the word EVENTS.	
You will spin an even number on a fair spinner with 8 sections numbered 1 - 8.	
You will pick a blue counter out of a bag containing 5 blue counters and 1 red counter.	
You will spin a 10 or less than 10 on a fair spinner with 10 sections numbered 1 - 10.	

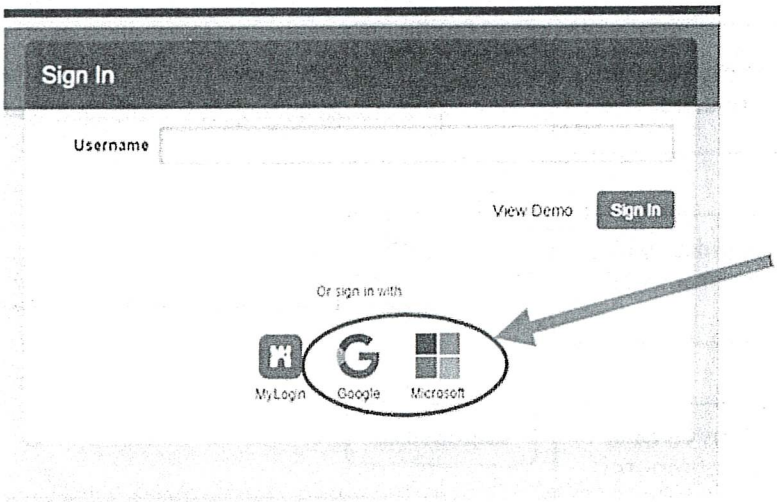
HOMEWORK 12: MATHSWATCH

For this week's homework, your teacher will set you a task to complete on the website MathsWatch. The task will be based on the content you have learnt over the past half term in your mathematics lessons. You can use the space on the next page to do any working out if you need to.

To log in, all students should use the **Single Sign-on service** through either Google or Microsoft. Click either the Google or Microsoft buttons (see below) and then enter you school email address and school computer login password.

e.g. 25bloggsj@benjaminbritten.school and password which could be: BlueCat123 (example)

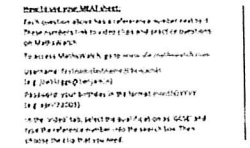
If you have any issues logging in, you must speak to your teacher as soon as possible.



Additional working out space:

Don't forget about your MEAT SHEETS

The purpose of your MEAT sheet is to identify both strengths and areas for development for you to work on independently using MathsWatch.



EXTRA SUPPORT

If you need help with completing your homework, please use the Mathswatch clips in the LOOK boxes first. If you are still stuck, speak to your class teacher.

If you need to contact the Head of Maths regarding any worries or concerns, you can contact Miss Pankhurst at:

j.pankhurst@benjaminbritten.school

RESOURCES PROVIDED BY:

Numeracy Ninjas
Mr Carter Maths
Miss B's Resources
NRich
Worksheet Works
Dr Austin
Mathspad