

Benjamin Britten Academy of Music and Mathematics

MATHEMATICS HOMEWORK BOOKLET

Year 7 Book A
SPRING TERM



NAME:



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

CONTENTS

WEEK	HOMEWORK TITLE
1	Numeracy
2	Place Value
3	Research task
4	Numeracy
5	Averages
6	Mathswatch
7	Numeracy
8	Sequences
9	Real life maths
10	Numeracy
11	Substitution
12	Mathswatch

Log in details:

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

Mathswatch

Username—firstnamelastname@benjamin

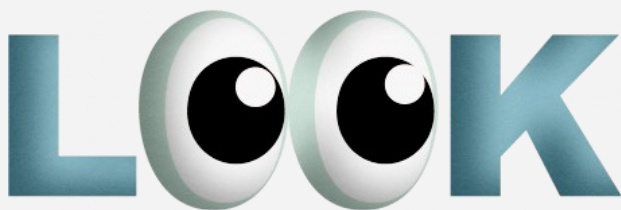
Password—your DOB (format: monthDYyyy)

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 at the back of the booklet. Part of your homework task each week is to **mark your work**. Make sure you mark all your answers in another colour pen, making any corrections if you need to.

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



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.





HOMWORK 1: NUMERACY

Literacy challenge – Anagrams!

Rearrange the letters below to form 3 keywords used in maths:

TABESCRK

DOCTRPU

RCATOSEODIN

Quick maths! Just 5 mins...go!

★★		★★★	
B1	$8231 + 8329$	C1	$515.3 - 1.654$
B2	$1216 \div 16$	C2	$1.615 \div 0.17$
B3	$3682 + 1346$	C3	$760.3 - 0.534$
B4	$2702 + 4229$	C4	$392.7 + 0.3672$
B5	$6074 + 7459$	C5	$892.9 + 5.414$
B6	$1155 \div 15$	C6	$9.18 \div 1.7$
B7	$7501 - 7083$	C7	$0.91 + 1.3$
B8	87×863	C8	$78.03 - 4.592$
B9	$2779 + 9245$	C9	$0.5368 + 0.7958$
B10	75×467	C10	$377.4 + 179.5$

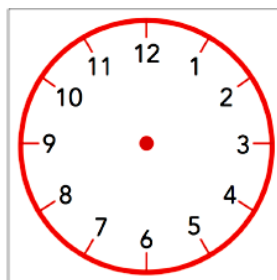
Recall and Recap

MENTAL STRATEGIES -
do these in your head

Q	Question	Answer
1	$3 + 17$	
2	What is double 55?	
3	$112 + 10$	
4	$29 - 10$	
5	$6 = 1 + \square$	
6	$58 - 11 = 58 - 8 - \square$	
7	$73 + 73 = \square \times 73$	
8	Draw hands on the clock face showing 10:10 am	
9	$7 + 3$	
10	$\square + 46 = 100$	
Total out of 10		

TIMESTABLES -
do these in your head

Q	Question	Answer
1	$6 \times 7 = \square$	
2	$24 \div 4 = \square$	
3	$4 \times \square = 28$	
4	$24 \div \square = 4$	
5	$7 \times 6 = \square$	
6	$18 \div 6 = \square$	
7	$\square \times 4 = 4$	
8	$\square \div 2 = 3$	
9	$5 \times 7 = \square$	
10	$54 \div 6 = \square$	
Total out of 10		



KEY SKILLS - you may use written calculations for these questions

Q	Question	Answer																														
1	$481 + 1429$																															
2	$(9 - 5)^2 + 3 \times 4$																															
3	Write One Thousand and Thirty Two in digits																															
4	$0.35 \div 100$																															
5	$(-6) \times (-10)$																															
6	Round 81.4358 to 2 d.p.																															
7	$(-5) + (-5)$																															
8	Round 21 to 2 s.f.																															
9	Letter at (0, -1) <table style="margin-left: 20px; border-collapse: collapse;"> <tr><td></td><td></td><td style="text-align: center;">y</td><td></td><td></td></tr> <tr><td>A</td><td>B</td><td style="text-align: center;">C</td><td>D</td><td>E</td></tr> <tr><td>F</td><td>G</td><td>H</td><td>I</td><td>J</td></tr> <tr><td>K</td><td>L</td><td>M</td><td>N</td><td>P > x</td></tr> <tr><td>Q</td><td>R</td><td>S</td><td>T</td><td>U</td></tr> <tr><td>V</td><td>W</td><td>X</td><td>Y</td><td>Z</td></tr> </table>			y			A	B	C	D	E	F	G	H	I	J	K	L	M	N	P > x	Q	R	S	T	U	V	W	X	Y	Z	
		y																														
A	B	C	D	E																												
F	G	H	I	J																												
K	L	M	N	P > x																												
Q	R	S	T	U																												
V	W	X	Y	Z																												
10	$1/4 = 3/\square$																															
Total out of 10																																





Problem solving!

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



Runners

Lily finished **2nd** out of **8 runners** in a race.

.....

.....

1 mark

Max was in a **different** race.

7 runners finished the race **before** Max.

3 runners finished the race **after** Max.

Altogether, how many runners finished the race?

.....

1 mark

In 2005, about 60.2 million people lived in the UK.

Look at the information about these people.

- 50.4 million lived in England.
- 5.1 million lived in Scotland.
- 3 million lived in Wales.
- The rest lived in Northern Ireland.

(a) In 2005, about how many people lived in Northern Ireland?

..... million

1 mark

(b) In 2005, about what percentage of people in the UK lived in Wales?

Tick (✓) the correct value.

..... 1% 5% 20% 63%

1 mark



HOMEWORK 2: PLACE VALUE

Let's start with the basics...

Write down these numbers in expanded form.

Example 41270 = 4 ten thousands + 1 thousand + 2 hundreds + 7 tens

1) 19304 = 1 ten thousands + 9 thousands + 3 hundreds + 4 ones

2) 23075 =

3) 9628 =

4) 12509 =

5) 47320 =

LOOK

N1

Applying your skills

Bronze

Q1) What does the 4 digit in 542, 181 represent?

Q2) What does the 2 digit in 682, 333 represent?

Q3) What does the 2 digit in 239, 879 represent?

Q4) What is the hundred-thousands digit of 758, 292?

Q5) What does the 8 digit in 382, 611 represent?

Q6) What does the 6 digit in 869, 252 represent?

Silver

Q1) What is the millions digit of 8, 543, 642?

Q2) What does the 7 digit in 3, 784, 343 represent?

Q3) What is the ten-thousands digit of 7, 295, 254?

Q4) What does the 4 digit in 5, 486, 837 represent?

Q5) What does the 3 digit in 5, 387, 147 represent?

Q6) What is the hundred-thousands digit of 4, 765, 54?

Gold

Q1) What is the millions digit of 2122053 + 3133200?

Q2) What is the hundred-thousands digit of 2, 332, 008 - 2, 153, 790?

Q3) What is the millions digit of 4363668 - 2168761?

Q4) What is the ten-thousands digit of 4, 248, 277 + 3, 496, 343?

Q5) What is the millions digit of 2446076 + 2132813?



Problem solving!

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

Here are four number cards



Jessica uses each card once to make an **even** four-digit number.

She places:

9 in the tens column

5 so that it has a higher value than any of the other digits

Write a digit in each box to show Jessica's number

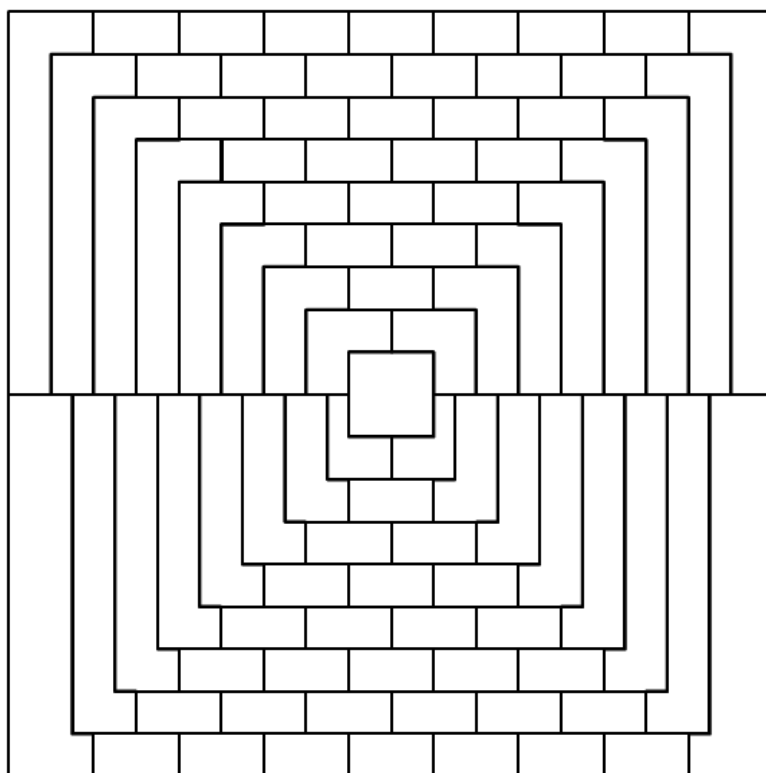
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HOMWORK 3: FOUR COLOUR THEOREM

Part A

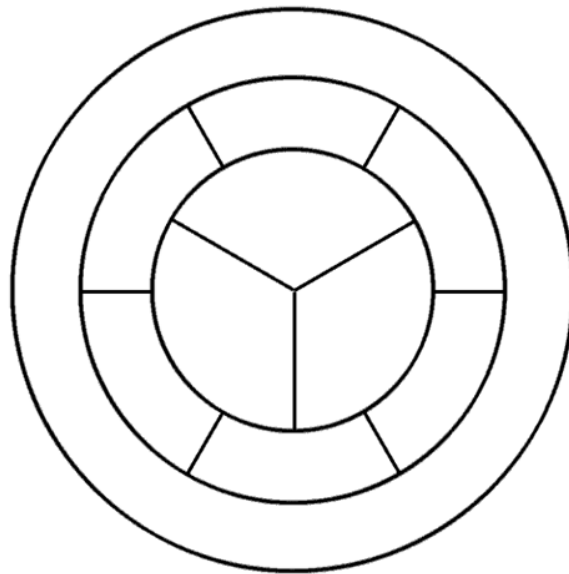
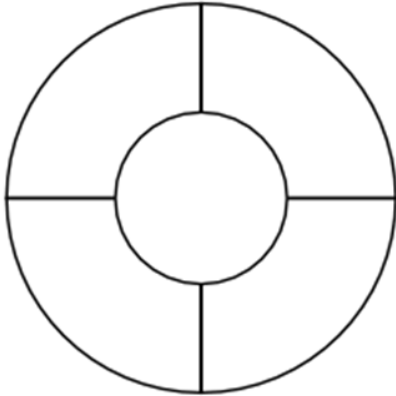
Colour in the pattern so that no areas which touch have the same colour. Try to use the least number of different colours possible.



What is the least number of different colours that are needed?



How many colours do you need to colour the two pictures below so that no two touching parts are the same colour? Use your own colours to test it out. Try to use the minimum number of colours possible.



Thanks to the Four Colour Theorem, we know that any picture of this kind only requires four different colours (to have no touching parts be the same colour).

RESEARCH: Use the internet or books to answer the following questions.

Q1 a) What is cartography?

b) How does the Four Colour Theorem link to cartography?

Q2 Why do some people believe that the Four Colour Theorem has not been proven properly?

Q3 Who famously thought he had proved the Four Colour Theorem but found out ten years later that he had made a mistake?



HOMEWORK 4: NUMERACY

Recall and Recap

MENTAL STRATEGIES -
do these in your head

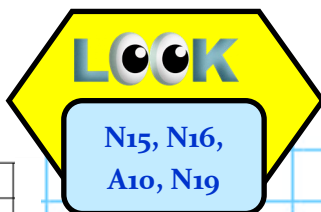
TIMESTABLES –
do these in your head

KEY SKILLS – you may use written calculations
for these questions

Q	Question	Answer
1	$\square + 3 = 5$	
2	$68 + \square = 100$	
3	What is half of 4?	
4	$189 - 10$	
5	$161 + \square = 240$	
6	$74 = 24 + \square$	
7	$629 - 627$	
8	$9 \times 5 = 45$, so $45 \div 9 = \square$	
9	Write 8:23 am in 24 hour clock format	
10	2:15 pm is how many minutes after 2:05 pm?	
Total out of 10		

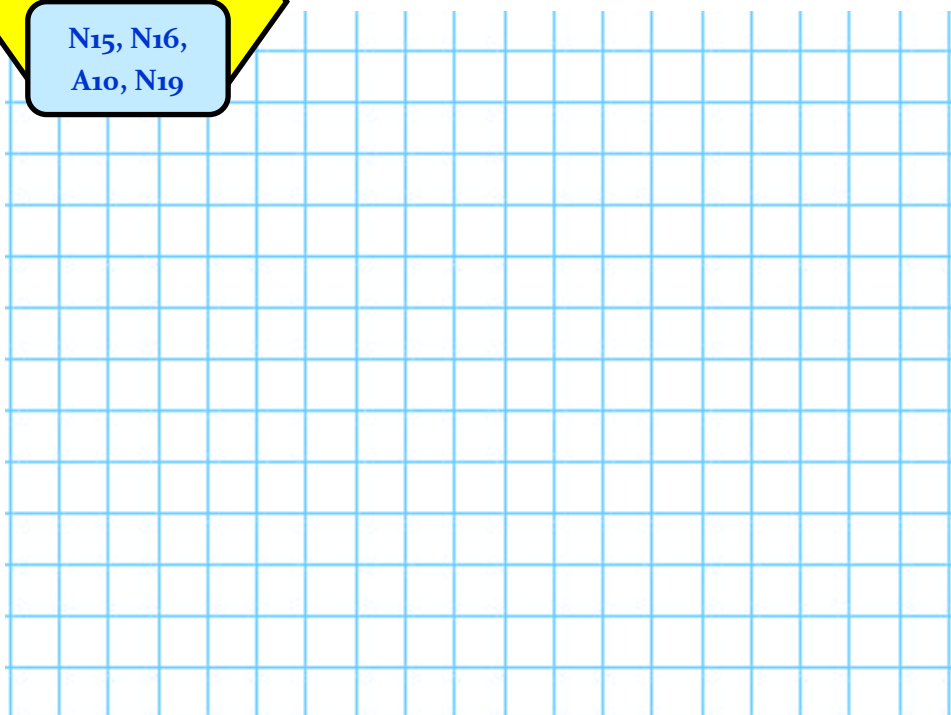
Q	Question	Answer
1	$5 \times 1 = \square$	
2	$24 \div 8 = \square$	
3	$5 \times \square = 30$	
4	$45 \div \square = 9$	
5	$6 \times 1 = \square$	
6	$40 \div 4 = \square$	
7	$\square \times 1 = 10$	
8	$\square \div 3 = 9$	
9	$6 \times 4 = \square$	
10	$2 \div 2 = \square$	
Total out of 10		

Q	Question	Answer
1	What is $\frac{4}{6}$ of 30?	
2	3×911	
3	$16071 - 8966$	
4	6.9×5.85	
5	$\frac{8}{10}$ as a decimal number	
6	$23.8 + 0.55$	
7	$(-18) \div 9$	
8	If $a = 6$ $b = 8$ and $c = 4$, what is the value of $(2b/c)^2$	
9	$(-1) - (-3)$	
10	Is 1 a factor of 3?	
Total out of 10		



Quick maths! Just 5 mins...go!

	★★
B1	$3480 - 1864$
B2	$5105 - 1990$
B3	$960 \div 15$
B4	$1050 + 3770$
B5	$8731 - 7375$
B6	$1106 \div 14$
B7	347×25
B8	$3133 + 5739$
B9	$8574 - 4025$
B10	$5282 - 3863$





Problem solving!

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



Boxes

Boxes of tins are delivered to a shop.

There are **37 boxes**.

Each box contains **25 tins**.

How many tins are there?

.....

2 marks

Shopping

Some people in a supermarket are shopping for food.

(a) **100g** of cheese costs **46p**.

Peter buys **250g** of the cheese.

How much does he pay?

£

1 mark

(b) Tins of beans cost **36p** each.

What is the largest number of these tins John can buy with **£2**?

.....

1 mark



HOMEWORK 5: AVERAGES

Recall and Recap: Frequency diagrams

I = 1 item
|||| = 5 items

Red Blue Red Green Blue
Blue Red Blue Red Yellow
Red Red Yellow Green Red
Green Blue Green Blue Red

Cross the items out as you tally them so you don't lose track

Complete the table from the data above.

Colour	Tally	Frequency
Red		
Blue		
Green		
Yellow		

Which fruit is the mode?

Pictograms **Remember a Key!**

Key: = 2 people, = 1 person

Blue:

Grey:

Brown:

Green: ?

Other:

How many people have grey eyes?

How many people have brown eyes?

5 people have green eyes, mark this on the diagram.



Applying your skills

Silver

Find the mean, mode, median and range (round to 1dp):

Q1) 4, 8, 8, 19, 20, 18

Q2) 5, 18, 14, 5, 14, 4

Q3) 12, 10, 21, 22, 12, 13

Q4) 17, 4, 3, 9, 17, 21

Q5) 12, 16, 18, 18, 2, 4

Gold

Find x when given the mean (round to 1dp):

Q1) Mean = 8.8
 $x, 16, 3, 12, 9$

Q2) Mean = 11
 $12, 7, 15, 14, x$

Q3) Mean = 12.8
 $3, 10, x, 7, 22$

Q4) Mean = 10.4
 $2, 11, x, 21, 4$



Problem solving!

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



Mean

The mean of five numbers is **10**

I add one more number and the mean is now **11**

What number did I add?

Handwritten mark

.....

2 marks

There are five people in the Smith family.

Females	Males
Mrs Smith, 38 years old	Mr Smith, x years old
Tina Smith, 9 years old	Ben Smith, y years old
Helen Smith, 7 years old	

The mean age of the males is **28**

What is the mean age of all five people in the family?

.....

2 marks



HOMWORK 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 maths lessons. You can use the space on the next page to do any working out if you need to.

Below are the log in instructions you will need in order to access and complete this homework task.

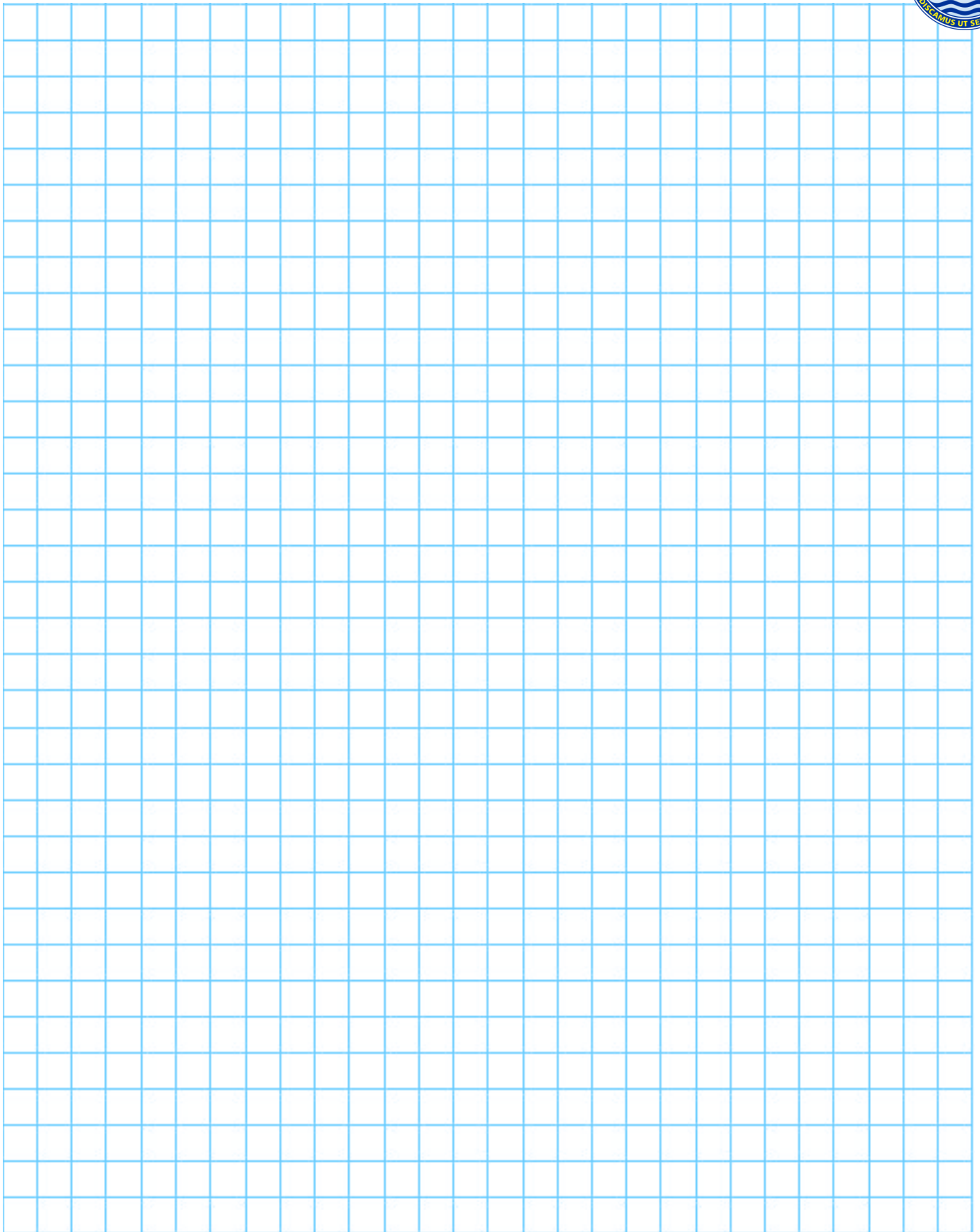
If you have any issues logging in, you must speak to your class teacher as soon as possible.

Username— firstnamelastname@benjamin

Password— your DOB (format: monthDYYYY)

If you need a printed copy of this homework task, make sure you speak to your class teacher before the due date and they will print a copy for you to complete.

Additional working out space:





HOMWORK 7: NUMERACY

Literacy challenge – Anagrams!

Rearrange the letters below to form 3 keywords used in maths:

DAMENI

SAMETIET

BTTIUSOTNSI

Recall and Recap

★★		★★★	
B1	$4232 - 1265$	C1	$1.862 \div 0.19$
B2	$5416 - 4292$	C2	$18.93 - 0.2231$
B3	$272 \div 16$	C3	$12.16 \div 1.6$
B4	645×64	C4	9.38×73.4
B5	55×182	C5	20.6×7.15
B6	$1218 \div 14$	C6	$0.12 \div 0.15$
B7	$7229 + 4496$	C7	74×70.1
B8	$8454 - 4569$	C8	$409.4 - 24.52$
B9	$1088 \div 17$	C9	$0.812 - 0.1137$
B10	$608 \div 16$	C10	$328.5 - 265.1$

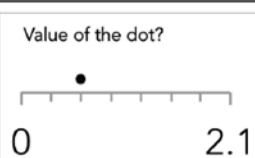
MENTAL STRATEGIES -
do these in your head

TIMESTABLES –
do these in your head

KEY SKILLS – you may use written calculations
for these questions

Q	Question	Answer
1	$\square + 7 = 10$	
2	What is double 9?	
3	Halve 40	
4	$111 + 30$	
5	$66 + 63$	
6	$17 + 9 = 17 + 3 + \square$	
7	$3 + 468$	
8	$33 + 70 = 30 + 70 + \square$	
9	Double 58	
10	What is half of 7?	
Total out of 10		

Q	Question	Answer
1	$6 \times 2 = \square$	
2	$36 \div 6 = \square$	
3	$5 \times \square = 15$	
4	$56 \div \square = 7$	
5	$3 \times 9 = \square$	
6	$5 \div 5 = \square$	
7	$\square \times 9 = 9$	
8	$\square \div 6 = 3$	
9	$8 \times 3 = \square$	
10	$18 \div 3 = \square$	
Total out of 10		

Q	Question	Answer
1	What is 125% of £150?	
2	$1710 \div 5$	
3	$85 - 15 \div 5$	
4	$28.82 \div 0.5$	
5	71.204×100	
6	$25 - 1.33$	
7	Simplify $6/60$	
8	Which is the lowest number, -4 or -3?	
9	Value of the dot? 	
10	List the first 4 multiples of 11	
Total out of 10		





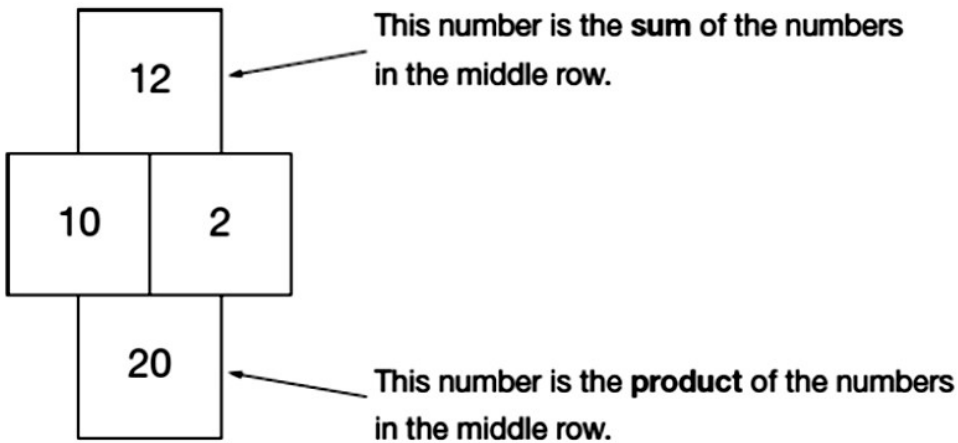
Problem solving!

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

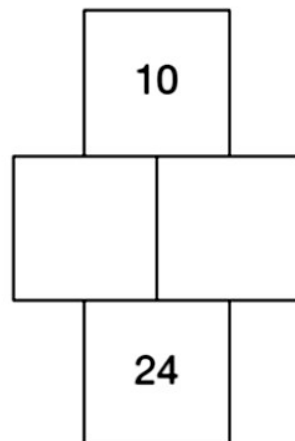
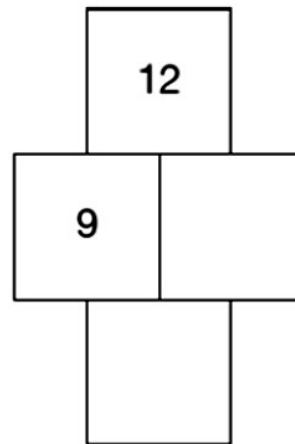
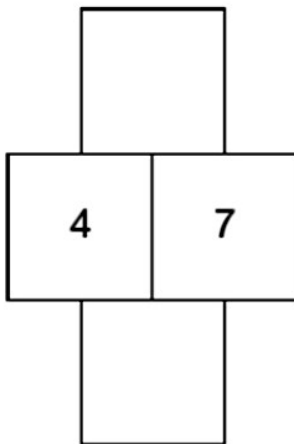


Number grids

Here are the rules for a number grid.



Use the rules to write the missing numbers in these number grids.



3 marks



HOMWORK 8: SEQUENCES

Recall and Recap:

Bronze

Fill in the boxes to complete the sequence and give the rule for each:

Q1) 46, 39, 32, , ,

Q2) 44, 36, 28, , ,

Q3) 4, 10, 16, , ,

Q4) 6, 11, 16, , ,

Q5) 3, 9, 15, , ,

Q6) 42, 38, 34, , ,

Silver

Fill in the boxes to complete the sequence and give the rule for each:

Q1) 43, , 35, 31,

Q2) 3, , 13.4, , 23.8

Q3) 6, 14.2, , 30.6,

Q4) 39, 33.5, , 22.5,

Q5) 5, 9, , 17,

Q6) 7, , 15.4, , 23.8

Think hard...



- (a) Is 205 a term in the sequence 1, 5, 9, 13, ?
- (b) Is 200 a term in the sequence 4, 10, 16, 22, ?
- (c) Is 1000 a term in the sequence 50, 65, 80, 95, ?
- (d) Is 999 a term in the sequence 11, 20, 29, 38, ?
- (e) Is 458 a term in the sequence 5, 12, 19, 26, ?



Problem solving!

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

The numbers in this sequence increase by 9 each time.

1 10 19 28 37 ...

The sequence continues in the same way.

Will 900 be in the sequence? Explain why

Yes / No

.....
.....

The numbers in this sequence increase by 4 each time.

4 8 12 16 ...

The numbers in this sequence increase by 7 each time.

7 14 21 28 ...

Both sequences continue

Write a number **greater than 100** which will be in **both** sequences



HOMEWORK 9: REAL LIFE MATHS

The following temperatures were taken in January.



Country/State	Temperature (°C)
Amsterdam	4
Cape Town	20
Hong Kong	15
Minneapolis	-21
Moscow	-17
New York	-6
Toronto	-16



1) Put the temperatures in order, from coldest to warmest.

_____ coldest _____ warmest _____

2) How much colder is Amsterdam than Cape Town? _____

3) How much warmer is New York than Moscow? _____

4) Vancouver is 13 degrees warmer than New York. What is the temperature in Vancouver? _____

5) How much colder is Toronto than Amsterdam? _____

6) What is the difference in temperature between the warmest and coldest place?

7) The temperature in Detroit is 32 degrees colder than Cape Town. What is the temperature in Detroit? _____

8) Which two places have the closest temperatures? _____

9) Which place has the median temperature? _____



Now solve the distance problems below:

Captain Salamander has just returned from a round the world trip with his friend Tyger. Here are the places they visited.

From	To	Distance (km)	Distance to nearest 100 km
Washington DC	Los Angeles	3693	3700
Los Angeles	Tokyo	8807	
Tokyo	Bombay	6741	
Bombay	Athens	5173	
Athens	Paris	2096	
Paris	London	343	
London	Washington DC	5899	

1) Fill in the distance to the nearest 100 km column.

2) Put the distances in order from shortest to longest.

_____ shortest _____ longest

3) How much further is the trip from Bombay to Athens than the trip from Washington DC to Los Angeles? _____ km

4) What is the total distance from Los Angeles to Tokyo to Bombay to Athens? _____ km

5) Tyger says 'The distance from Washington DC to Los Angeles is more than 10 times the distance from Paris to London.' Is he right? _____

6) When arriving at Bombay, Tyger says 'So far we have travelled over 20,000 km.' Is he right?





HOMWORK 10: NUMERACY

Literacy challenge – Anagrams!

Rearrange the letters below to form 3 keywords used in maths:

QAESUR

CIMAELDS

BTACRISOTUN

★★		★★★	
B1	$7744 + 7307$	C1	$0.1008 \div 0.12$
B2	$1140 \div 12$	C2	$0.7431 - 0.331$
B3	$6562 + 3752$	C3	$9.705 - 2.804$
B4	$5268 - 2156$	C4	99.5×4.73
B5	$5438 - 2089$	C5	$20.46 - 15.49$
B6	$8901 - 4046$	C6	854×7.28
B7	$9560 - 3190$	C7	$0.0322 \div 0.14$
B8	49×438	C8	$33.43 + 707.3$
B9	578×16	C9	$133.7 + 984.5$
B10	$224 \div 14$	C10	$0.5443 + 68.23$

Recall and Recap

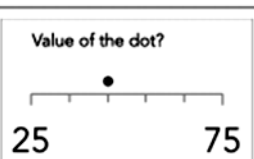
MENTAL STRATEGIES -
do these in your head

Q	Question	Answer
1	$\square + 5 = 10$	
2	Double 3	
3	Halve 35	
4	$173 + 50$	
5	$47 + 44$	
6	$32 + 10 = 32 + 8 + \square$	
7	$1 + 566$	
8	$40 + 68 = 40 + 60 + \square$	
9	$3 + 2$	
10	$4 + \square = 20$	
Total out of 10		

TIMESTABLES -
do these in your head

Q	Question	Answer
1	$6 \times 3 = \square$	
2	$14 \div 2 = \square$	
3	$6 \times \square = 36$	
4	$18 \div \square = 6$	
5	$9 \times 3 = \square$	
6	$32 \div 8 = \square$	
7	$\square \times 4 = 24$	
8	$\square \div 10 = 4$	
9	$4 \times 2 = \square$	
10	$30 \div 3 = \square$	
Total out of 10		

KEY SKILLS - you may use written calculations for these questions

Q	Question	Answer
1	$2688 \div 3$	
2	$8 + 8 \div 2$	
3	$245.52 \div 4$	
4	6.14×10	
5	$16.15 - 5.11$	
6	Write $63/70$ in its simplest form	
7	Which is the lowest number, 3 or -9?	
8	Value of the dot? 	
9	List the first 4 multiples of 14	
10	What is the value of (-4) cubed?	
Total out of 10		



$$5 + 4 = \text{Octagon} \quad 7 - 4 = \text{Star}$$

Now use what you've learned to find the answers to these:

(1) $\text{Star} + \text{Star} + \text{Star} =$

(2) $\text{Star} + \text{Octagon} + \text{Star} =$

(3) $\text{Octagon} + \text{Star} + \text{Octagon} =$

(4) $\text{Star} + 5 + \text{Octagon} =$

(5) $\text{Octagon} + \text{Octagon} - \text{Octagon} =$

(6) $\text{Octagon} + \text{Star} - 3 =$

(7) $4 \times \text{Star} \times \text{Octagon} =$

(8) $\text{Octagon} + \text{Star} - \text{Octagon} =$

(9) $4 \times \text{Star} \div \text{Star} =$

(10) $7 \times \text{Octagon} \div \text{Octagon} =$

(11) $\text{Star} + \text{Octagon} \times \text{Star} =$

(12) $\text{Octagon} + \text{Star} \times \text{Octagon} =$

(13) $\text{Octagon} \times \text{Star} - \text{Octagon} =$

(14) $\text{Octagon} + 24 \div \text{Star} =$

(15) $\text{Octagon} \times \text{Star} - \text{Star} =$

(16) $2 \times \text{Octagon} - \text{Star} =$

(17) $\text{Star} + 54 \div \text{Octagon} =$

(18) $\text{Star} + \text{Star} \times \text{Octagon} =$

(19) $\text{Star} + \text{Star} + \text{Octagon} \times \text{Octagon} =$

(20) $\text{Octagon} \times \text{Octagon} + \text{Star} \times \text{Star} =$



HOMEWORK 11: SUBSTITUTION

Recall and Recap: Area problems

Bronze

Q1) If $q = 10$ find:
 $8q - 5$

Q2) If $d = 9$ find:
 $3d + 3$

Q3) If $s = 3$ find:
 $8s + 11$

Q4) If $b = 7$ find:
 $4b + 9$

Q5) If $i = 7$ find:
 $3i + 9$

Silver

Q1) If $r = 10$ and $k = 7$ find:
 $2r + 5k + 3$

Q2) If $q = 12$ and $f = 3$ find:
 $4q + 12f - 8$

Q3) If $d = 9$ and $x = 5$ find:
 $10d + 4x - 6$

Q4) If $q = 3$ and $w = 8$ find:
 $8q + 2w - 11$

Q5) If $w = 10$ and $q = 3$ find:
 $5w + 11q - 5$

Applying your skills

Let $x = 4$ and $y = -3$ **Skill 1**

- 1) $3x + 6$
- 2) $3x - 15$
- 3) $2y - 2$
- 4) $4x + 9$
- 5) $3 - x$
- 6) $3 - y$
- 7) $5 - 2x$
- 8) $7 + y$

Let $x = 2$ and $z = 5$ **Skill 2**

- 1) $x^2 + 5$
- 2) $x^2 - 3$
- 3) $2x^2 + 3$
- 4) $6x^2 - 7$
- 5) $x^3 - 7$
- 6) $z^2 + 3$
- 7) $3z^2 - 80$

Stretch

1) $10 - 2x$ $3x + 10$ x^2
 $-3x$ x^{-1} x^0

a) If $x = 5$ place the expressions in ascending order.
b) Is there a way of reversing the order?
c) Could you make every expressions value the same?

2) Find the values of a and b when $p = 10$.

$$a = \frac{3p^3}{2}$$
$$b = \frac{2p^2(p-3)}{7p}$$

LOOK

G20

Substitution - Crossword Challenge



$$a = 2$$

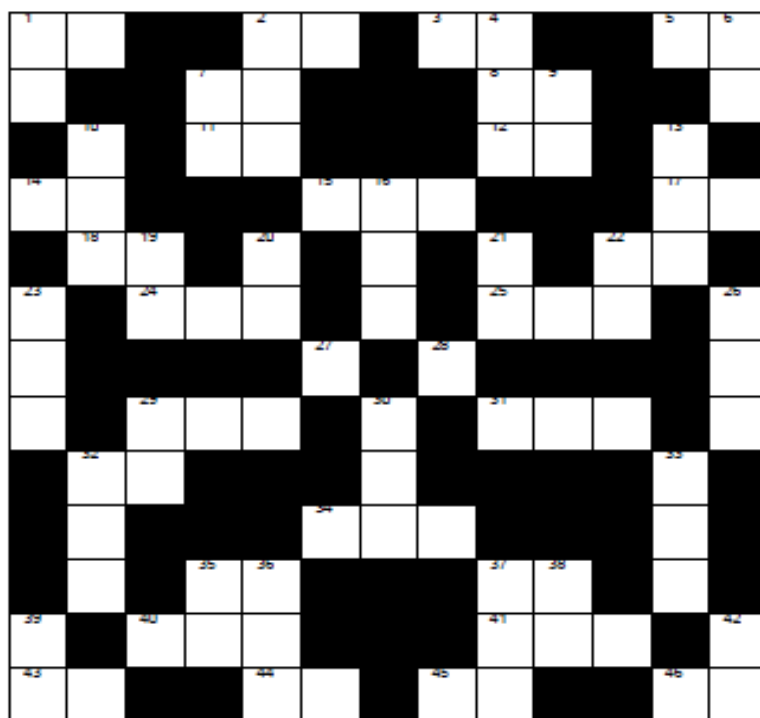
$$b = 4$$

$$c = -6$$

$$d = 3$$

$$e = -4$$

$$f = 10$$



ACROSS

1. $b - c$
2. $a + b - c$
3. $d + f$
5. $-4c$
7. $5b$
8. $bf + 13a$
11. $2(a + d)$
12. $2(b - c + d)$
14. $2(b - c)$
15. $11(a - c + d)$
17. $e - cd$
18. $21b$
22. df
24. $-bcf$
25. $30(b + d - c)$
27. $a - e$
28. $e - c$
29. $10f + a$
31. $12bd$
32. $7d$
34. $9bd$
35. $bf + e$
37. $f - e$
40. $4bf$
41. $10ce + 2bf$
43. $6(d - c)$
44. $10d + 2ab$
45. $5b + 4d$
46. $2(b + d - c)$

DOWN

1. bd
2. $10f$
4. $9bf + 2$
6. $3f + 6a$
7. $3(b + d)$
9. $10b + 2f + 3a$
10. $12(d - c)$
13. $11f$
16. $6a(2b + 4d)$
19. $6(b + d)$
20. $-bc + e$
21. $d + f$
22. $2(3d - c)$
23. $3f(b - c)$
26. f^2
29. $a - c + d$
30. $c^2(a + d)$
32. $7df$
33. $5f^2 + 4bd$
35. $4(d - c)$
36. $6f^2 + b$
37. $9f - 7c$
38. $3f - de$
39. $5(a + d)$
42. $f - c$



HOMWORK 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 maths lessons. You can use the space on the next page to do any working out if you need to.

Below are the log in instructions you will need in order to access and complete this homework task.

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

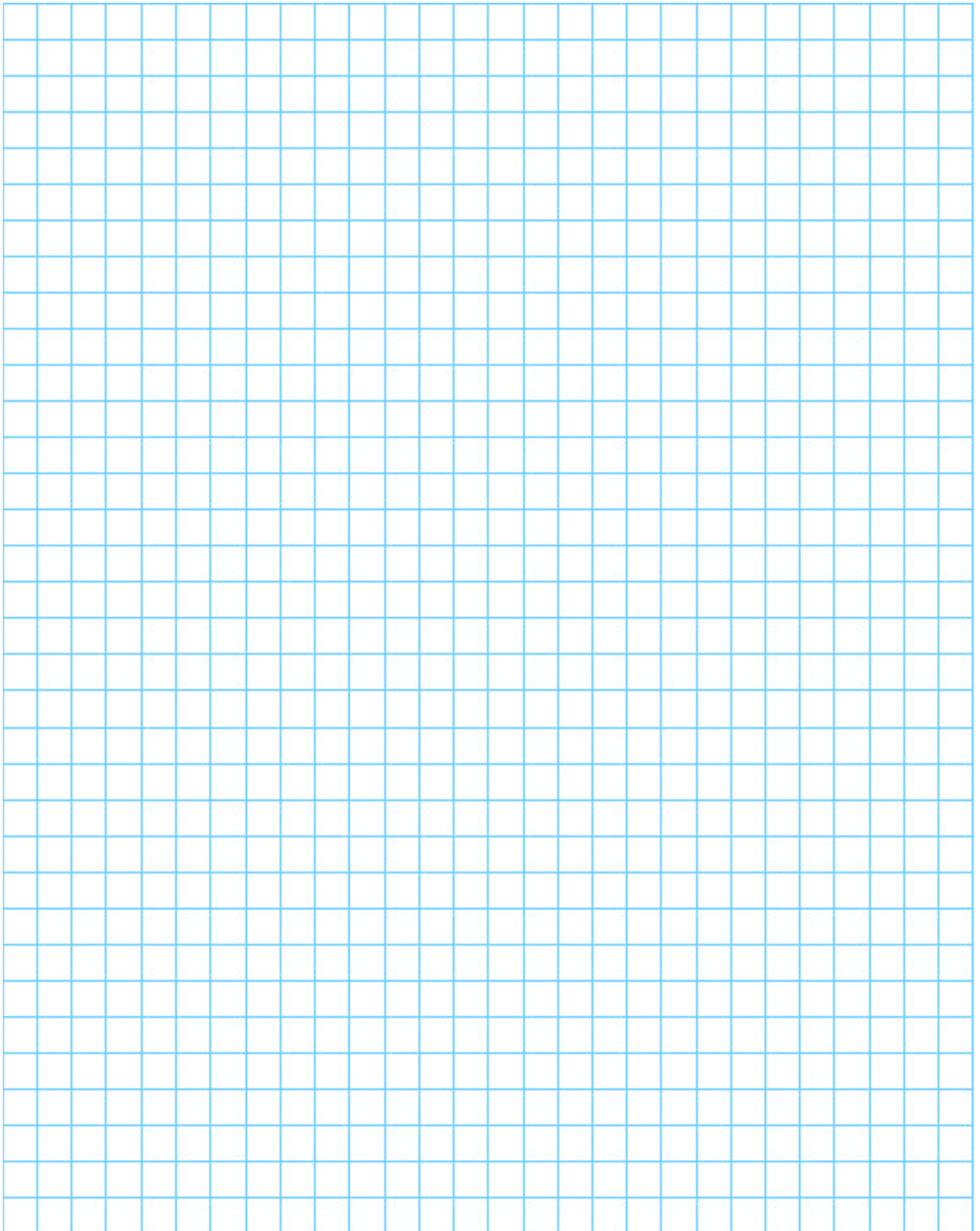
Username— firstnamelastname@benjamin

Password— your DOB (format: monthDYYYYY)

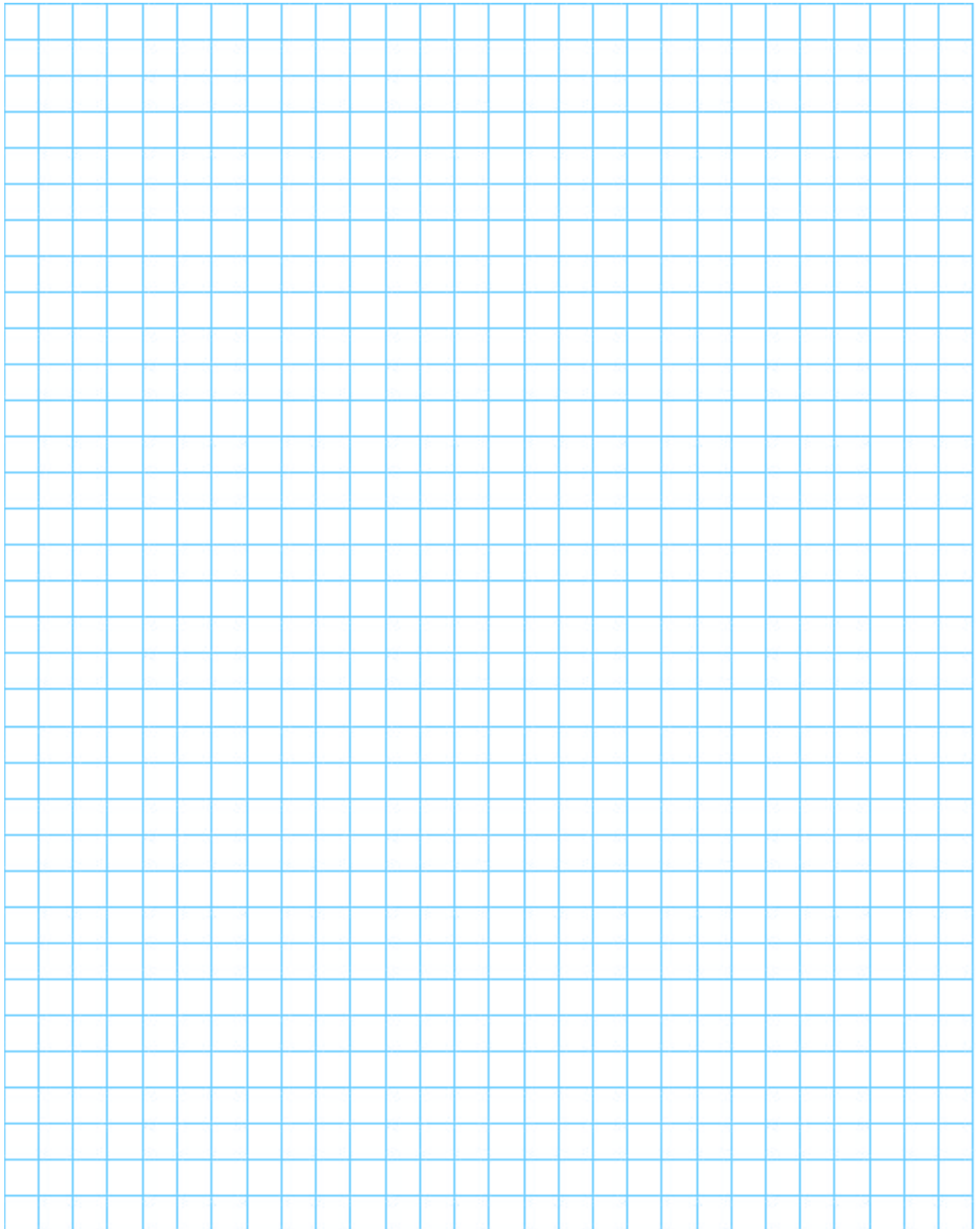
If you need a printed copy of this homework task, make sure you speak to your class teacher before the due date and they will print a copy for you to complete.



Additional working out space:



Additional working out space:



ANSWERS—WEEK 1

A1	B1	16560	C1	513.646
A2	B2	76	C2	9.5
A3	B3	5028	C3	759.766
A4	B4	6931	C4	393.0672
A5	B5	13533	C5	898.314
A6	B6	77	C6	5.4
A7	B7	418	C7	0.7
A8	B8	75081	C8	73.438
A9	B9	12024	C9	1.3326
A10	B10	35025	C10	556.9

File

Q	Question	Answer
1	$481 + 1429$	1910
2	$(9 - 5)^2 + 3 \times 4$	28
3	Write One Thousand and Thirty Two in digits	1032
4	$0.35 + 100$	0.0035
5	$(-6) \times (-10)$	60
6	Round 81.4358 to 2 d.p.	81.44
7	$(-5) + (-5)$	-10
8	Round 21 to 2 s.f.	21
9	Letter at (0, -1)	S
10	$1/4 = 3/\square$	12

Q	Question	Answer
1	$6 \times 7 = \square$	42
2	$24 \div 4 = \square$	6
3	$4 \times \square = 28$	7
4	$24 \div \square = 4$	6
5	$7 \times 6 = \square$	42
6	$18 \div 6 = \square$	3
7	$\square \times 4 = 4$	1
8	$\square \div 2 = 3$	6
9	$5 \times 7 = \square$	35
10	$54 \div 6 = \square$	9

Q	Question	Answer
1	$3 + 17$	20
2	What is double 55?	110
3	$112 + 10$	122
4	$29 - 10$	19
5	$6 = 1 + \square$	5
6	$58 - 11 = 58 - 8 - \square$	3
7	$73 + 73 = \square \times 73$	2
8	Draw hands on the clock face showing 10:10 am See clock above	
9	$7 + 3$	10
10	$\square + 46 = 100$	54

[2]

1

(b) Indicates 5%, ie

1

(a) Gives a value between 1.5 and 1.9 inclusive

Accept equivalent fractions or decimals

Answer of 2

Accept if no incorrect working shown

[2]

1 (11)

1

11

6

ANSWERS—WEEK 2

Gold	Q1) 5
	Q2) 1
	Q3) 2
	Q4) 4
	Q5) 4

Silver	Q1) 8
	Q2) Seven hundred thousand
	Q3) 9
	Q4) Four hundred thousand
	Q5) Three hundred thousand
	Q6) 7

Bronze	Q1) Forty thousand
	Q2) Two thousand
	Q3) Two hundred thousand
	Q4) 7
	Q5) Eighty thousand
	Q6) Sixty thousand

- 1) 19304 = 1 ten thousands + 9 thousands + 3 hundreds + 4 ones
- 2) 23075 = 2 ten thousands + 3 thousands + 7 tens + 5 ones
- 3) 9628 = 9 thousands + 6 hundreds + 2 tens + 8 ones
- 4) 12509 = 1 ten thousand + 2 thousands + 5 hundreds + 9 ones
- 5) 47320 = 4 ten thousands + 7 thousands + 3 hundreds + 2 tens



2 9 3 5

Write a digit in each box to show Jessica's number

5 so that it has a higher value than any of the other digits

9 in the tens column

She places:

Jessica uses each card once to make an **even** four-digit number.



Here are four number cards

ANSWERS—WEEK 4

Q	Question	Answer
1	What is $\frac{4}{6}$ of 30?	20
2	3×911	2733
3	$16071 - 8966$	7105
4	6.9×5.85	40.365
5	$\frac{8}{10}$ as a decimal number	0.8
6	$23.8 + 0.55$	24.35
7	$(-18) \div 9$	-2
8	If $a = 6$, $b = 8$ and $c = 4$, what is the value of $(2b/c)^2$	16
9	$(-1) - (-3)$	2
10	Is 1 a factor of 3?	Yes

Q	Question	Answer
1	$5 \times 1 = \square$	5
2	$24 \div 8 = \square$	3
3	$5 \times \square = 30$	6
4	$45 \div \square = 9$	5
5	$6 \times 1 = \square$	6
6	$40 \div 4 = \square$	10
7	$\square \times 1 = 10$	10
8	$\square \div 3 = 9$	27
9	$6 \times 4 = \square$	24
10	$2 \div 2 = \square$	1

Q	Question	Answer
1	$\square + 3 = 5$	2
2	$68 + \square = 100$	32
3	What is half of 4?	2
4	$189 - 10$	179
5	$161 + \square = 240$	79
6	$74 = 24 + \square$	50
7	$629 - 627$	2
8	$9 \times 5 = 45$, so $45 \div 9 = \square$	5
9	Write 8:23 am in 24 hour clock format	08:23
10	2:15 pm is how many minutes after 2:05 pm?	10

B1	1616
B2	3115
B3	64
B4	4820
B5	1356
B6	79
B7	8675
B8	8872
B9	4549
B10	1419

2

Shows a complete correct method with not more than one computational error

eg
 $37 \times 100 = 3700$
 $3700 \div 2 = 1850$
 $1850 \div 2$

	30	7
20	600	140
5	150	45 (error)

so $600 + 150 + 140 + 45 = 935$

- 37
 $\times 25$
 $\hline 185$
 640
 $\hline 825$
 (error)

Do not accept conceptual error
 eg

- 37
 $\times 25$
 $\hline 185$
 74
 $\hline 259$

(a) £ 1.15

1

(b) 5

i Reference to remainder

Condone reference to the correct amount of money left over

- eg, accept
- 5 with 20p change
- 5 r 20
- eg, do not accept
- 5.5(...) or 5.6
- 5 with 50p change

1

[2]

1

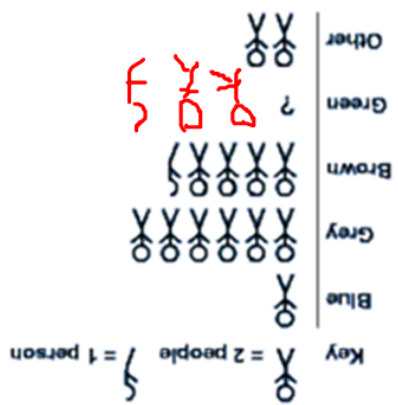
ANSWERS—WEEK 5

Gold	Silver
Q1) $x = 4$	Q1) Mean = 12.8, Mode = 8, Median = 13, Range = 16
Q2) $x = 7$	Q2) Mean = 10, Mode = 5, Median = 9.5, Range = 14
Q3) $x = 22$	Q3) Mean = 15, Mode = 12, Median = 12.5, Range = 12
Q4) $x = 14$	Q4) Mean = 11.8, Mode = 17, Median = 13, Range = 18
	Q5) Mean = 11.7, Mode = 18, Median = 14, Range = 16

5 people have green eyes, mark this on the diagram.

How many people have brown eyes? **9**

How many people have grey eyes? **12**



Pictograms

Remember a Key!

Which fruit is the mode? **Red**

Colour	Tally	Frequency
Red		5
Blue		5
Green		5
Yellow		2

Complete the table from the data above.

Cross the items out as you tally them so you don't lose track

Red	Blue	Green	Blue	Green	Blue	Red
Blue	Red	Yellow	Green	Red	Red	Red
Red	Blue	Red	Yellow	Red	Blue	Red
Green	Blue	Green	Blue	Red	Blue	Red

|| = 1 item
|||| = 5 items

2.

22, with no evidence of an incorrect method

or

Shows the value 110

or

Shows or implies that the total age of the males is 56

eg

$2 \times 28 = 56$

- Mr Smith and Ben's ages must add up to 56
- Mr Smith could be 38 and Ben could be 18

or

Shows a complete correct method with not more than one computational

error

eg

$(56 + 38 + 9 + 7) \div 5$

$(54 + 56) \div 5$

$2 \times 28 = 46$ (error),

$46 + 38 + 9 + 7 = 100, 100 \div 5 = 20$

1

[2]

3.

16

or Shows the value 66

or

Shows or implies a complete correct method with not more than one

computational error

eg

$6 \times 11 - 5 \times 10$

$5 \times 10 = 50, 6 \times 11 = 65$ (error) so 15

i

For 1m, method uses arbitrary values with a mean of 10 for the

original five numbers

Condone

eg, for 1m accept

$8 + 9 + 10 + 11 + 12 = 49$ (error)

$6 \times 11 - 49 = 17$

Do not accept for 1m, error is in the number of values in the

set after one is added

eg

$5 \times 11 = 55, 55 - 50 = 5$

1

(U1)

[2]

2 (U2)

ANSWERS—WEEK 7

B1	**	C1	2967
B2	1124	C2	18.7069
B3	17	C3	7.6
B4	41280	C4	688.492
B5	10010	C5	147.29
B6	87	C6	0.8
B7	11725	C7	5187.4
B8	3885	C8	384.88
B9	64	C9	0.6983
B10	38	C10	63.4

Q	Question	Answer
1	What is 125% of £150?	£187.50
2	$1710 \div 5$	342
3	$85 - 15 + 5$	82
4	$28.82 \div 0.5$	57.64
5	71.204×100	7120.4
6	$25 - 1.33$	23.67
7	Simplify $6/60$	1/10
8	Which is the lowest number, -4 or -3?	-4
9	See number line	0.6
10	List the first 4 multiples of 11	11, 22, 33, 44

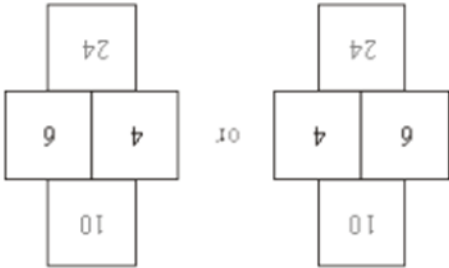
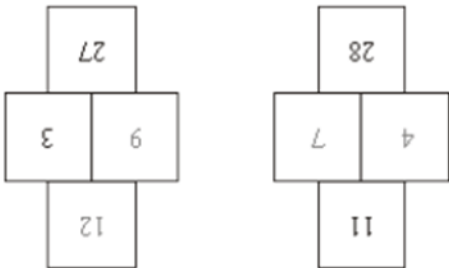
Q	Question	Answer
1	$6 \times 2 = \square$	12
2	$36 \div 6 = \square$	6
3	$5 \times \square = 15$	3
4	$56 \div \square = 7$	8
5	$3 \times 9 = \square$	27
6	$5 \div 5 = \square$	1
7	$\square \times 9 = 9$	1
8	$\square \div 6 = 3$	18
9	$8 \times 3 = \square$	24
10	$18 \div 3 = \square$	6

Q	Question	Answer
1	$\square + 7 = 10$	3
2	What is double 9?	18
3	Halve 40	20
4	$111 + 30$	141
5	$66 + 63$	129
6	$17 + 9 = 17 + 3 + \square$	6
7	$3 + 468$	471
8	$33 + 70 = 30 + 70 + \square$	3
9	Double 58	116
10	What is half of 7?	3.5



6.

Completes all three grids correctly, ie



or Completes the first two grids correctly

or

Completes the third grid correctly and gives any two correct entries in the first

two grids

or

Completes the third grid correctly, gives any one correct entry in the first grid, makes an error in the right hand entry of the second grid, but follows through correctly to give their product

or Gives any two correct entries in the first two grids

or

Completes the third grid correctly

or

Gives any one correct entry in the first grid, makes an error in the right hand entry of the second grid, but follows through correctly to give their product

1

(U1)

ANSWERS—WEEK 8

- (a) Yes
- (b) No
- (c) No
- (d) No
- (e) No

Silver
Q1) 39, 27 Rule: Subtract 4
Q2) 8.2, 18.6 Rule: Add 5.2
Q3) 22.4, 38.8 Rule: Add 8.2
Q4) 28, 17 Rule: Subtract 5.5
Q5) 13, 21 Rule: Add 4
Q6) 11.2, 19.6 Rule: Add 4.2

Bronze
Q1) 25, 18, 11 Rule: Subtract 7
Q2) 20, 12, 4 Rule: Subtract 8
Q3) 22, 28, 34 Rule: Add 6
Q4) 21, 26, 31 Rule: Add 5
Q5) 21, 27, 33 Rule: Add 6
Q6) 30, 26, 22 Rule: Subtract 4

28 56 84 112

Write a number greater than 100 which will be in both sequences

Both sequences continue

7 14 21 28 ...

The numbers in this sequence increase by 7 each time.

4 8 12 16 ...

The numbers in this sequence increase by 4 each time.

Each number in the sequence is one more than the multiples of 9. Therefore no multiple of 9 is in the sequence.

Yes/No

Will 900 be in the sequence? Explain why

ANSWERS—WEEK 9

Captain Salamander has just returned from a round the world trip with his friend Tyger. Here are the places they visited.

From	To	Distance (km)	Distance to nearest 100 km
Washington DC	Los Angeles	3693	3700
Los Angeles	Tokyo	8807	8800
Tokyo	Bombay	6741	6700
Bombay	Athens	5173	5200
Athens	Paris	2096	2100
Paris	London	343	300
London	Washington DC	5899	5900

1) Fill in the distance to the nearest 100 km column.

2) Put the distances in order from shortest to longest.

343	2096	3693	5173	5899	6741	8807
shortest						longest

3) How much further is the trip from Bombay to Athens than the trip from Washington DC to Los Angeles? 1480 km

4) What is the total distance from Los Angeles to Tokyo to Bombay to Athens? 15548 km

5) Tyger says 'The distance from Washington DC to Los Angeles is more than 10 times the distance from Paris to London.' Is he right? no $343 \times 10 = 3430$

6) When arriving at Bombay, Tyger says 'So far we have travelled over 20,000 km.' Is he right?

$$3693 + 8807 + 6741 = 19241 \quad \text{no}$$



The following temperatures were taken in January.



Country/State	Temperature (°C)
Amsterdam	4
Cape Town	20
Hong Kong	15
Minneapolis	-21
Moscow	-17
New York	-6
Toronto	-16

1) Put the temperatures in order, from coldest to warmest.

coldest _____
 -21 _____
 -17 _____
 -16 _____
 -6 _____
 -4 _____
 -15 _____
 -20 _____
 warmest

2) How much colder is Amsterdam than Cape Town? 16° colder

3) How much warmer is New York than Moscow? 11° warmer

4) Vancouver is 13 degrees warmer than New York. What is the temperature in Vancouver? 7°

5) How much colder is Toronto than Amsterdam? 20° colder

6) What is the difference in temperature between the warmest and coldest place? 41°

7) The temperature in Detroit is 32 degrees colder than Cape Town. What is the temperature in Detroit? -12°

8) Which two places have the closest temperatures? Minneapolis and Moscow

9) Which place has the median temperature? New York

ANSWERS—WEEK 10



Q	Question	Answer
10	What is the value of (-4) cubed?	-64
9	List the first 4 multiples of 14	14, 28, 42, 56
8	See number line	45
7	Which is the lowest number, 3 or -9?	-9
6	Write $63/70$ in its simplest form	$9/10$
5	$16.15 - 5.11$	11.04
4	6.14×10	61.4
3	$245.52 \div 4$	61.38
2	$8 + 8 \div 2$	12
1	$2688 \div 3$	896
	Question	Answer

Q	Question	Answer
10	$30 \div 3 = \square$	10
9	$4 \times 2 = \square$	8
8	$\square \div 10 = 4$	40
7	$\square \times 4 = 24$	6
6	$32 \div 8 = \square$	4
5	$9 \times 3 = \square$	27
4	$18 \div \square = 6$	3
3	$6 \times \square = 36$	6
2	$14 \div 2 = \square$	7
1	$6 \times 3 = \square$	18
	Question	Answer

Q	Question	Answer
10	$4 + \square = 20$	16
9	$3 + 2$	5
8	$40 + 68 = 40 + 60 + \square$	8
7	$1 + 566$	567
6	$32 + 10 = 32 + 8 + \square$	2
5	$47 + 44$	91
4	$173 + 50$	223
3	Halve 35	17.5
2	Double 3	6
1	$\square + 5 = 10$	5
	Question	Answer

B10	16	C10	68.7743
B9	9248	C9	1118.2
B8	21462	C8	740.73
B7	6370	C7	0.23
B6	4855	C6	6217.12
B5	3349	C5	4.97
B4	3112	C4	470.635
B3	10314	C3	6.901
B2	95	C2	0.4121
B1	15051	C1	0.84
	**		***

- (1) $9 = 3 + 3 + 3$
- (2) $15 = 3 + 9 + 3$
- (3) $21 = 9 + 3 + 9$
- (4) $17 = 9 + 5 + 3$
- (5) $9 = 9 + 9 - 9$
- (6) $9 = 3 - 3 + 9$
- (7) $108 = 4 \times 3 \times 9$
- (8) $3 = 9 + 3 - 9$
- (9) $4 = 3 \div 3 \times 4$
- (10) $7 = 9 \div 9 \times 7$
- (11) $30 = 3 \times 9 + 3$
- (12) $30 = 9 \times 3 + 9$
- (13) $18 = 9 - 3 \times 9$
- (14) $17 = 9 + 24 \div 3$
- (15) $24 = 3 - 3 \times 9$
- (16) $15 = 3 - 9 \times 2$
- (17) $9 = 9 \div 54 + 3$
- (18) $36 = 9 \times 3 + 3$
- (19) $87 = 9 \times 9 + 3 + 3$
- (20) $90 = 3 \times 3 + 9 \times 9$

Now use what you've learned to find the answers to these:

$$5 + 4 = 9 \quad 7 - 4 = 3$$

ANSWERS—WEEK 11

1) $10 - 2x$ $3x + 10$ x^2
 $-3x$ x^{-1} x^0

a) if $x = 5$ place the expressions in ascending order.
 b) Is there a way of reversing the order?
 c) Could you make every expressions value the same?

2) Find the values of a and b when $p = 10$.

$$a = \frac{3p^3}{2} = \frac{3 \times 10^3}{2} = \frac{3 \times 1000}{2} = \frac{3000}{2} = 1500$$

$$b = \frac{7p}{2p^2(p-3)} = \frac{7 \times 10}{2 \times 100 \times 7} = \frac{1400}{1400} = 1$$

Stretch

www.missbressi

Let $x = 2$ and $z = 5$

1) $x^2 + 5 = 4 + 5 = 9$
 2) $x^2 - 3 = 4 - 3 = 1$
 3) $2x^2 + 3 = 8 + 3 = 11$
 4) $6x^2 - 7 = 24 - 7 = 17$
 5) $x^3 - 7 = 8 - 7 = 1$
 6) $z^2 + 3 = 25 + 3 = 28$
 7) $3z^2 - 80 = 75 - 80 = -5$

Skill 2

Let $x = 4$ and $y = -3$

1) $3x + 6 = 12 + 6 = 18$
 2) $3x - 15 = 12 - 15 = -3$
 3) $2y - 2 = -6 - 2 = -8$
 4) $4x + 9 = 16 + 9 = 25$
 5) $3 - x = 3 - 4 = -1$
 6) $3 - y = 3 - (-3) = 3 + 3 = 6$
 7) $5 - 2x = 5 - 8 = -3$
 8) $7 + y = 7 + (-3) = 4$

Skill 1

Silver

Q1) 58 Q2) 76 Q3) 104 Q4) 29 Q5) 78 Q6) 59

Bronze

Q1) 75 Q2) 30 Q3) 35 Q4) 37 Q5) 30 Q6) 88

5	4				6	4				4	5	
2		1	6	0						1	6	0
	0		3	6						0		
	1				1	0	8					
	2		1							2		
0		1	0	2						1	0	2
0					2		6					
3		2	4	0			0			3	9	0
	8	4		2			4			1	3	0
2	0				1	2	1					
	1									1	0	2
2										2	0	2
1	0											
1	4									2	4	

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
10Ticks

