MATHEMATICS
HOMEWORK BOOKLET

Benjamin Britten Academy of Music and Mathematics

Year 7 Book A

AUTUMN TERM

Answers

NAME:

Mathematics homework

Contents

How does it work?

- One homework will be set a week
- The 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 mathswatch, 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 lose your booklet a copy 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.

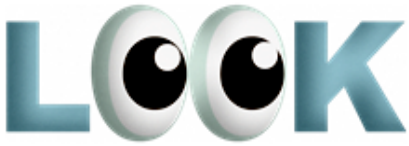
Login details

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)



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:

Literacy challenge: Missing letters!

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

A D D I T I O N

M U L T I P L A C A T I O N

A R I T H M E T I C

×	7	3	11	6	2	4	8	9	5	12	10
9	63	27	99	54	18	36	72	81	45	108	90
4	28	12	44	24	8	16	32	36	20	48	40
2	14	6	22	12	4	8	16	18	10	24	20
8	56	24	88	48	16	32	64	72	40	96	80
10	70	30	110	60	20	40	80	90	50	120	100
3	21	9	33	18	6	12	24	27	15	36	30
7	49	21	77	42	14	28	56	63	35	84	70
5	35	15	55	30	10	20	40	45	25	60	50
12	84	36	132	72	24	48	96	108	60	144	120
11	77	33	121	66	22	44	88	99	55	132	110
6	42	18	66	36	12	24	48	54	30	72	60

1) $2607 + 1328 = 3935$

2) $5286 + 505 = 5791$

3) $2305 + 3523 = 5828$

4) $6817 + 1320 = 8137$

5) $2582 + 2173 = 4755$

6) $4438 + 3121 = 7559$

7) $7653 + 273 = 7926$

8) $1914 + 359 = 2273$

answers

1822 − 204 = 1618	4129 − 702 = 3427	6540 − 222 = 6318	2335 − 256 = 2079
1042 − 245 = 797	3650 − 717 = 2933	5037 − 244 = 4793	4*19 − *31 = 3988

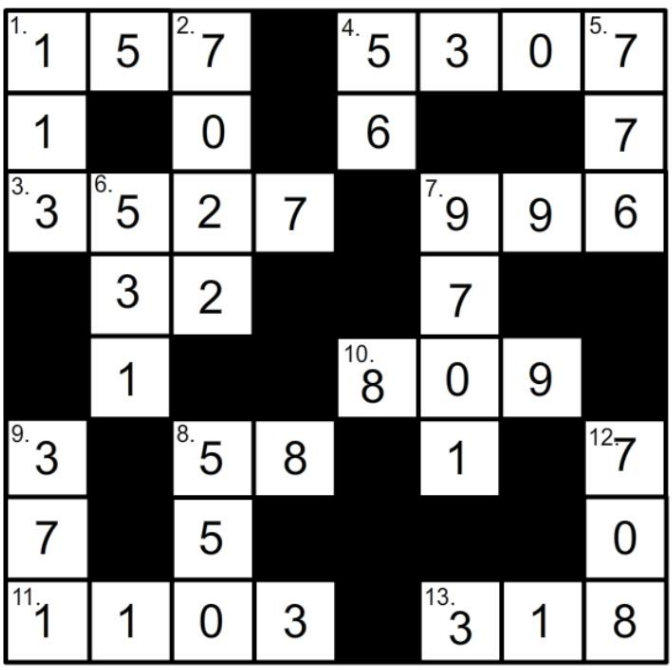
* There are multiple answers to the last puzzle, but the digits in the two boxes marked with a star must be the same *

across

1) 32 + 125
3) 896 + 2631
4) 4977 + 330
7) 1012 - 16
8) 1028 - 970
10) 2040 - 1231
11) 142 + 961
13) 1218 - 900

down

1) 98 + 15
2) 283 + 6739
4) 153 - 97
5) 654 + 122
6)1000 - 469
7) 10000 - 299
8) 613 - 63
9) 98 + 273
12) 1223 - 515



answers

Homework 2:

List the first 10 even numbers:___0,2,4,6,8,10,12,14,16,18,20

List the fist 10 off numbers:____1,3,5,7,9,11,13,15,17,19

If even numbers always end with a 0,2,4,6,8 what digits do odd numbers always end in___1,3,5,7,9_

CHALLENGE 1

- *I am greater than 200.*
- *I am even.*
- *I am a multiple of 5.*

Who am I? _____

A 526	B 713	C 92	D 107
E 274	F 810	G 625	H 321

CHALLENGE 2

- *I am an odd number.*
- *I am less than 800.*
- *The total of all my digits is also odd.*
- *I am not a multiple of 5.*

Who am I? _____

A 526	B 713	C 92	D 107
E 274	F 810	G 625	H 321

CHALLENGE 1

- *I am less than 900.*
- *I am a 3-digit number.*
- *I am odd.*
- *The total of all my digits is also odd.*

Who am I? _____

A 509	B 280	C 465	D 258
E 87	F 833	G 912	H 314

CHALLENGE 2

- *I am greater than 250.*
- *My hundreds digit is less than 8.*
- *I am an even number.*
- *My smallest digit is my tens digit.*

Who am I? _____

A 509	B 280	C 465	D 258
E 87	F 833	G 912	H 314

Write down an odd prime number.

Lots of different answers

.....

(1)

Write down an even square number.

Lots of different answers

.....

(1)

Andrea adds two odd numbers.

Is the correct answer, odd, even or either?

☐ odd ☐ even ☐ either

Shown below are 4 number cards.

Using the number cards, make

(a) the smallest possible 2 digit number.

26

.....

(1)

(b) the largest possible 4 digit **odd** number.

8629

.....

(1)

1

Convince me that adding an even number and an odd number always gives an odd answer

Hide Solution

POSSIBLE ARGUMENT

Even numbers can be split into exact pairs, while odd numbers always have one left over. When you add them, the even part pairs up perfectly, but the odd number's "leftover 1" stays unpaired — so the total always has a remainder of 1 when divided by 2. For example: 4 + 7 = 11, 10 + 3 = 13, 2 + 1 = 3.

Visually, imagine arranging the even number as complete pairs of counters and the odd number as pairs with one spare. Combining them gives a bigger set of pairs, but that one spare counter is still left over, making the total odd. This also works with 0 + 1 = 1 (odd), confirming that 0 behaves as an even number here.

2

Convince me that the sum of two odd numbers is always even

Hide Solution

POSSIBLE ARGUMENT

Every odd number is one more than an even number. So if we add two odd numbers, we're adding two even numbers plus two extra ones: even + even + 1 + 1 = even + 2, which is still even. For example: 7 + 5 = (6 + 1) + (4 + 1) = 6 + 4 + 2 = 12.

Visually, imagine each odd number as pairs of counters with one left over. Two odd numbers each have one "lonely" counter — but those two lonely counters pair up together, leaving no remainder. The result is always even.

3

Convince me that half of an even number is not always even

Hide Solution

POSSIBLE ARGUMENT

We just need one counterexample: half of 6 is 3, and 3 is odd. Similarly, half of 2 is 1 (odd), half of 10 is 5 (odd), and half of 14 is 7 (odd). So halving an even number does not guarantee an even result.

The pattern: even numbers that are multiples of 4 (like 4, 8, 12, 16...) do halve to give even numbers. But even numbers that are *not* multiples of 4 (like 2, 6, 10, 14...) halve to give odd numbers. Students who test only 4, 8, and 12 might wrongly conclude the result is always even.

4

Convince me that −7 is an odd number

Hide Solution

POSSIBLE ARGUMENT

A number is even if it can be written as 2 × (a whole number), and odd if it cannot. −7 ÷ 2 = −3.5, which is not a whole number, so −7 is not a multiple of 2. Therefore −7 is odd.

On a number line, odd and even numbers alternate: ... −4 (even), −3 (odd), −2 (even), −1 (odd), 0 (even), 1 (odd), 2 (even) ... Following this pattern, −7 sits between −8 (even) and −6 (even), confirming it is odd. The concept of odd and even applies to all integers, not just positive ones.

Homework 5:

answers

Work out what is happening in the sequences.
Can you figure out the missing terms?

A	7	12	17	22	27	32
B	5	8	11	14	17	20
C	16	13	10	7	4	1
D	15	9	3	-3	-9	-15
E	22	14	6	-2	-10	-18
F	9	12	15	18	21	24
G	-3	1	5	9	13	17

H	-2	-4	-6	-8	-10	-12
I	-12	-9	-6	-3	0	3
J	0.1	0.12	0.14	0.16	0.18	0.2
K	0.27	0.24	0.21	0.18	0.15	0.12
L	-1.24	-1.3	-1.36	-1.42	-1.48	-1.54
M	$\frac{1}{2}$	1	$\frac{3}{2}$	2	$\frac{5}{2}$	3
N	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$

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

1. Write down the first 10 triangular numbers. 1, 3, 6, 10, 15, 21, 28, 36, 45, 55

2. In each **geometric** sequence below, fill in the next term:

a) 1, 3, 9, 27

b) 2, 20, 200, 2000

c) 2, 10, 50, 250

d) 0.4, 4, 40, 400

3. In each **fibonacci** sequence below, fill in the next term:

a) 1, 1, 2, 3, 5, 8

b) 2, 2, 4, 6, 10, 16

c) 0.1, 0.1, 0.2, 0.3, 0.5, 0.8

d) -2, -1, -3, -4, -7, -11

4. For each sequence below, say whether it is geometric, arithmetic or fibonacci:

a) 10, 12, 14, 16, 18 Arithmetic

b) 3, 6, 12, 24, 48 Geometric

c) 1, 5, 25, 125, 625 Geometric

d) 3, 3, 6, 9, 15, 24 Fibonacci

e) 18, 15, 12, 9, 6 Arithmetic

f) -1, -2, -4, -8, -16, -32 Geometric

g) 0.5, 0.5, 1, 1.5, 2.5, 4 Fibonacci

h) 10, 9, 8, 7, 6, 5 Arithmetic

i) 10,000, 1,000, 100, 10, 1 Geometric

j) -4, -2, 0, 2, 4, 6 Arithmetic

Homework 6:

Given that $a = 3$, evaluate:

a) $10a$ 30

b) a^2 9

c) $\frac{4a}{6}$ 2

d) $5a - 1$ 14

e) $4a + 2$ 14

f) $9(a - 1)$ 18

g) $2a^2$ 18

h) $(2a)^2$ 36

i) $5(a - 1)$ 10

j) a^3 27

k) $(2a)^3$ 216

l) $(a + 2)^2$ 25

a) xy 6

b) $x - y$ -1

c) $3x^2$ 12

5 + 4 = 9	7 − 4 = 3

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

(1) 3 + 3 + 3 = 9

(2) 3 + 9 + 3 = 15

(3) 9 + 3 + 9 = 21

(4) 3 + 5 + 9 = 17

(5) 9 + 9 − 9 = 9

(6) 9 + 3 − 3 = 9

(7) 4 × 3 × 9 = 108

(8) 9 + 3 − 9 = 3

(9) 4 × 3 ÷ 3 = 4

(10) 7 × 9 ÷ 9 = 7

(11) 3 + 9 × 3 = 30

(12) 9 + 3 × 9 = 30

(13) 9 × 3 − 9 = 18

(14) 9 + 24 ÷ 3 = 17

(15) 9 × 3 − 3 = 24

(16) 2 × 9 − 3 = 15

(17) 3 + 54 ÷ 9 = 9

(18) 3 + 3 × 9 = 36

(19) 3 + 3 + 9 × 9 = 87

(20) 9 × 9 + 3 × 3 = 90

answers to puzzle 1

7	5	6
1	2	0
3	8	12

Homework 8:

2. (a) VIII (b) XVII (c) XXII (d) LVIII (e) XXXIX
(f) LXXXIV (g) LXXVIII (h) CXXIII (i) CCCXXXIX (j) MCCLXV
(k) MLXVI (l) MMMCXCIV

1. (a) 7 (b) 13 (c) 16

(d) 27 (e) 18 (f) 19

(g) 45 (h) 72

Cistercian Numerals!

Cistercian numerals (going down): 7036, 1995, 7285, 4817, 227, 2700, 3167, 4433, 6390

Homework 9:

×	6	12	11	2	5	7	3	9	4	10	8
6	36	72	66	12	30	42	18	54	24	60	48
2	12	24	22	4	10	14	6	18	8	20	16
11	66	132	121	22	55	77	33	99	44	110	88
5	30	60	55	10	25	35	15	45	20	50	40
7	42	84	77	14	35	49	21	63	28	70	56
3	18	36	33	6	15	21	9	27	12	30	24
10	60	120	110	20	50	70	30	90	40	100	80
8	48	96	88	16	40	56	24	72	32	80	64
4	24	48	44	8	20	28	12	36	16	40	32
12	72	144	132	24	60	84	36	108	48	120	96
9	54	108	99	18	45	63	27	81	36	90	72

1. 0.6 is the same as:

   a) 0.600 b) 6.0 c) 0.06 d) 0.66

2. Which of these numbers is the **largest**?

   a) 0.92 b) 0.149 c) 0.840 d) 0.09999

3. Select the **larger** number in each pair, or write = if they are the same.

   a) 0.412 or 0.48 b) 1.38 or 1.4 c) 0.508 or 0.507

   d) 7.05 or 7.005 e) 5.125 or 5.25 f) 0.3 or 0.29

   g) 9.49 or 9.491 h) 10.46 or 1.047 i) 0.16 or 0.106

4. True or false?

   a) 0.4 = 0.400 True c) 0.24 ≥ 0.240 True e) 0.99 < 1.0 True

   b) 0.6 > 0.06 True d) 0.71 < 0.707 False f) 0.647 < 0.7 True

5. Write down a positive number that is less than 0.01 *Any number beginning 0.00...*

6. Which of these numbers is the **smallest**?

   a) 0.02 b) 0.4 c) 0.009 d) 0.013

1. Which of these numbers have 1 decimal place? Select all that apply.

a) 43 b) 4.5 c) 2.75 d) 62.0 e) 200.30

2. Round each number to 1 decimal place:

a) 3.62 3.6 c) 2.45 2.5 e) 4.319 4.3 g) 105.1098 105.1

Decode the Joke — Rounding to Decimal Places

Calculate a value for each of the letters of the alphabet.

A	4.84 *to* 1 *d.p.*	4.8
B	5.36 *to* 1 *d.p.*	5.4
C	5.666 *to* 2 *d.p.*	5.67
D	6.099 *to* 2 *d.p.*	6.10
E	4.88 *to* 1 *d.p.*	4.9
F	5.77 *to* 1 *d.p.*	5.8
G	4.8515 *to* 2 *d.p.*	4.85
H	5.5454 *to* 2 *d.p.*	5.55
I	6.234 *to* 2 *d.p.*	6.23
J	5.081 *to* 1 *d.p.*	5.1
K	4.987 *to* 2 *d.p.*	4.99
L	4.534 *to* 2 *d.p.*	4.53
M	5.67 *to* 1 *d.p.*	5.7

N	4.809 *to* 2 *d.p.*	4.81
O	5.012 *to* 2 *d.p.*	5.01
P	4.956 *to* 1 *d.p.*	5.0
Q	5.601 *to* 1 *d.p.*	5.6
R	5.873 *to* 2 *d.p.*	5.87
S	5.26 *to* 1 *d.p.*	5.3
T	4.561 *to* 2 *d.p.*	4.56
U	4.795 *to* 2 *d.p.*	4.80
V	5.997 *to* 2 *d.p.*	6.00
W	5.45 *to* 1 *d.p.*	5.5
X	5.117 *to* 2 *d.p.*	5.12
Y	5.23 *to* 1 *d.p.*	5.2
Z	5.987 *to* 2 *d.p.*	5.99

Now decode the joke....

4.81	4.9	6.00	4.9	5.87		4.8	5.87	4.85	4.80	4.9		5.5	6.23	4.56	5.55
N	E	V	E	R		A	R	G	U	E		W	I	T	H

6.10	4.9	5.67	6.23	5.7	4.8	4.53	5.3	.		4.56	5.55	4.9	5.2		4.8	4.53
D	E	C	I	M	A	L	S	.		T	H	E	Y		A	L

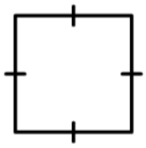
5.5	4.8	5.2	5.3		5.55	4.8	6.00	4.9		4.8		5.0	5.01	6.23	4.81	4.56
W	A	Y	S		H	A	V	E		A		P	O	I	N	T

Homework 11:

1). 12 cm	2). 22 cm	3). 24 cm	4). 20 cm
5). 42 cm	6). 40 cm	7). 36 m	8). 28 m

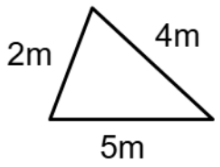
1. Work out the perimeter of each shape:

a)



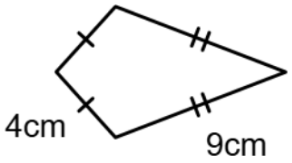
12cm

b)



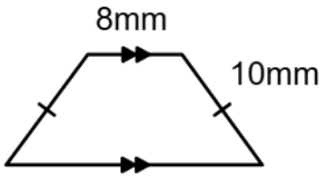
11m

c)



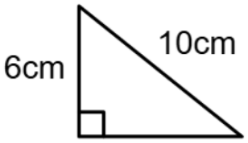
26cm

d)



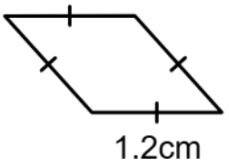
44mm

e)



24cm

f)



4.8cm

60

Q1) Perimeter

$= 42 + 42 + 36 + 36$

$= 156m$

Total cost

$= 67 \times 156 = 10452p$

$= £104.52$

Q2) Perimeter is

$= (22 + 15 + 7 + 6 + 15 + 9)$

$= 74m$

Q3) Perimeter is

$= (4 \times 23) + (4 \times 23)$

$+(4 \times 34) = 320cm$

Homework 12:

Literacy challenge: Anagrams!

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

DIVISION

CALCULATION

OPERATIONS

×	3	9	8	4	2	10	7	5	11	6	12
9	27	81	72	36	18	90	63	45	99	54	108
2	6	18	16	8	4	20	14	10	22	12	24
4	12	36	32	16	8	40	28	20	44	24	48
8	24	72	64	32	16	80	56	40	88	48	96
10	30	90	80	40	20	100	70	50	110	60	120
3	9	27	24	12	6	30	21	15	33	18	36
7	21	63	56	28	14	70	49	35	77	42	84
11	33	99	88	44	22	110	77	55	121	66	132
5	15	45	40	20	10	50	35	25	55	30	60
12	36	108	96	48	24	120	84	60	132	72	144
6	18	54	48	24	12	60	42	30	66	36	72

Round these numbers to the nearest 10:

a) 64 60

c) 108 110

b) 92 90

d) 203 200

Round these numbers to the nearest 100:

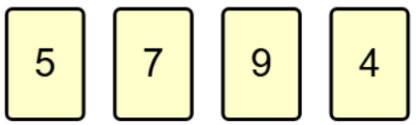
a) 556 600

c) 76 100

b) 289 300

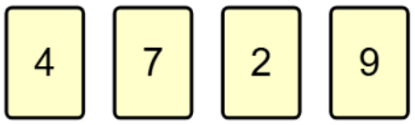
d) 1450 1500

Arrange these cards to make a number that rounds to 9480, to the nearest ten:



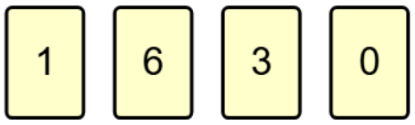
9475

Arrange these cards to make a number that rounds to 2700, to the nearest hundred:



2749

Arrange these cards to make a number that rounds to 4000, to the nearest thousand:



3601 or 3610

1. Which of the following equals 0.676767...?

a) $0.6\dot{7}$ b) $\dot{0}.6\dot{7}$ c) $0.\dot{6}\dot{7}$ d) $0.\dot{6}\dot{7}$

2. Which of the following equals 1.588888...?

a) $1.5\dot{8}$ b) $\dot{1}.5\dot{8}$ c) $1.\dot{5}8$ d) $1.\dot{5}\dot{8}$

3. Which of the following equals 4.219219...?

a) $4.21\dot{9}$ b) $4.2\dot{1}\dot{9}$ c) $4.\dot{2}1\dot{9}$ d) $4.\dot{2}\dot{1}9$

4. Write each of these recurring decimals using dot notation:

a) 0.7222222... $0.7\dot{2}$ b) 4.3232323... $4.\dot{3}\dot{2}$

c) 1.421421421... $1.\dot{4}2\dot{1}$ d) 5.5555555... $5.\dot{5}$

e) 6.728282828... $6.7\dot{2}\dot{8}$ f) 3.4151515.... $3.4\dot{1}\dot{5}$

5. Which of these are terminating decimals? Select all that apply.

a) 0.26 b) 1.8 c) 0.3131... d) 0.0000004

6. The number 4.44444 is:

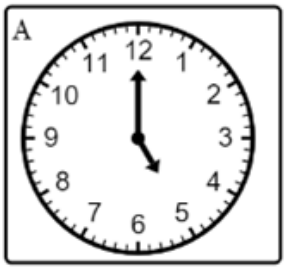
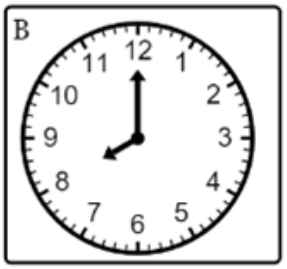
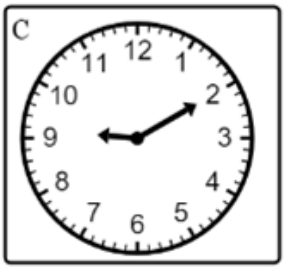
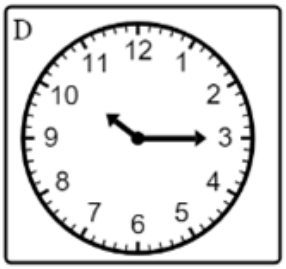
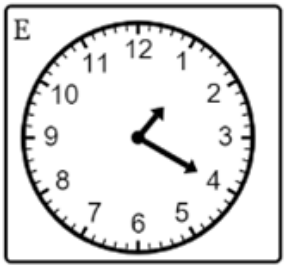
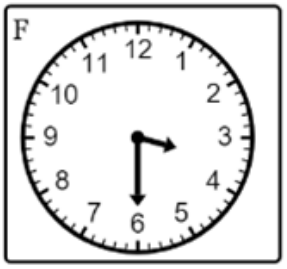
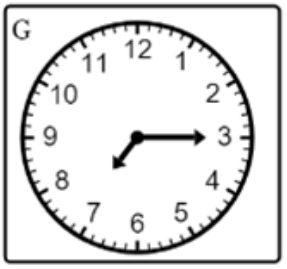
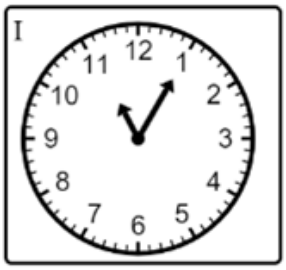
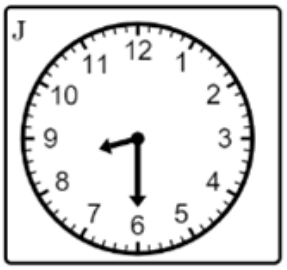
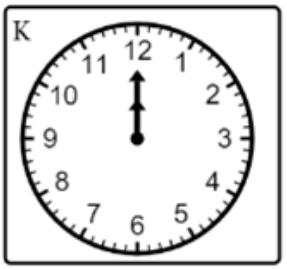
a) a terminating decimal
b) an irrational number
c) a recurring decimal
d) an integer

Fraction	Decimal using Calculator	Terminating or Recurring
$\frac{1}{2}$	0.5	Terminating
$\frac{1}{3}$	$0.\dot{3}$	Recurring
$\frac{1}{4}$	0.25	Terminating
$\frac{1}{5}$	0.2	Terminating
$\frac{1}{6}$	$0.1\dot{6}$	Recurring

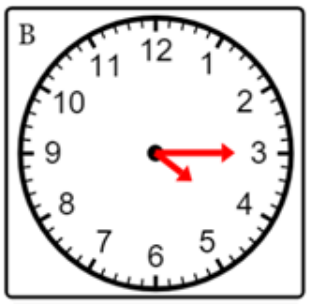
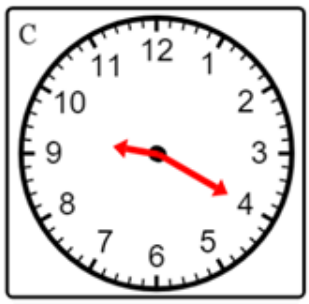
Fraction	Decimal using Calculator	Terminating or Recurring
$\frac{1}{12}$	$0.08\dot{3}$	Recurring
$\frac{1}{13}$	$0.\dot{0}76923\dot{0}$	Recurring
$\frac{1}{14}$	$0.0\dot{7}14285\dot{7}$	Recurring
$\frac{1}{15}$	$0.0\dot{6}$	Recurring
$\frac{1}{16}$	0.0625	Terminating

Homework 13:

1. Write the correct time under each clock

A	B	C	D
			
5:00	8:00	9:10	10:15
E	F	G	H
			
1:20	3:30	7:15	3:25
I	J	K	L
			
11:05	8:30	12:00	9:25

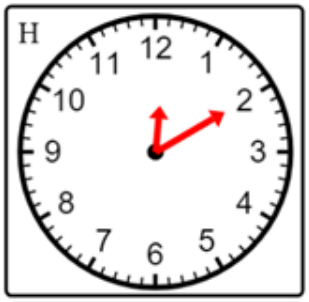
2. On each clock draw the hands in the correct place to show the time given

A	B	C	D
			
11.05	4.15	9.20	6.30

Twenty past eight

Twenty five past seven

Half past one



Ten past twelve

1. Work out the given times:

   a) 20 minutes after 3:15 pm 3:35 pm

   b) 4 hours after 11 am 3 pm

   c) $\frac{1}{2}$ hour after 6:50 pm 7:20 pm

   d) 35 minutes after 10:40 am 11:15 am

   e) 40 minutes ***before*** 9:30 am 8:50 am

   f) $\frac{3}{4}$ hour ***before*** 4:20 pm 3:35 pm

2. A TV programme is 30 minutes long and starts at 7:10 pm.
   At what time does the programme end? 7:40 pm

3. Vikki leaves home at 2:45 pm and walks to a park.
   She arrives at the park 25 minutes later. At what time is this? 3:10 pm

4. A meal takes 50 minutes to cook.
   The meal needs to be ready for 6:30 pm.
   At what time should the chef start cooking the meal? 5:40 pm

Hayley left her home at 10.40 am. +14 mins

She walked from her home to the shop.
It took her 14 minutes to walk to the shop. 10 54

Hayley was at the shop for 10 minutes. + 10 mins

11 04

+ 22 mins

Then Hayley walked from the shop to her friends house.
It took Hayley 22 minutes to walk to her friends house. 11 26

What time did Hayley arrive at her friends house?

11.26 am

EXTRA SUPPORT

*If you need help with completing your homework, please use Mathswatch and watch the video clips for the topic. 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