Benjamin Britten Academy of Music and Mathematics

MATHEMATICS HOMEWORK BOOKLET

Year 8 Book C SPRING TERM



NAME:



How does it work?

- One homework will be seta 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

WEE K	HOMEWORK TITLE		
1	Numeracy		
2	Multiplying Fractions Recall		
3	Mathswatch		
4	Research Task		
5	Percentages		
	Mathswatch		
6	Mathswatch		
7	Mathswatch Numeracy		
	11245215 11 41511		
7	Numeracy		
7 8	Numeracy Dividing Fractions Recall		
7 8 9	Numeracy Dividing Fractions Recall 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.

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



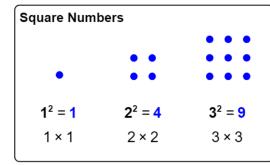
If you see the logo above next to a task, you can type the clip number into Mathswatch for extra help!

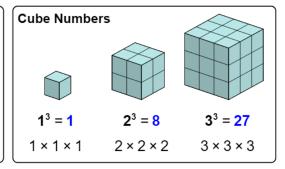
Watch the video and make notes, then try the homework task again. If you still need help, then speak to your maths teacher at school.





HOMEWORK 1: NUMERACY





Which of the following are square numbers? Choose all that apply.

	10	16	9	27	3	8	48	1	55	36
ı	10	10			0		70	' '	00	00

Which of the following are cube numbers? Choose all that apply.

Г										
ı	4	1	100	9	1000	6	64	125	27	81
ı										

Find:

- a) a square number between 20 and 30
- b) a cube number less than 5
- c) an odd square number between 50 and 100
- d) a cube number that ends in 7

Which two of these numbers add up to a square number?

14 13 11

Which two of these numbers add up to a cube number?

7	18	9

Work out the missing values:

a)
$$5^{\Box} = 25$$

c)
$$2^{\Box} = 16$$

d)
$$\square^2 = 144$$

e)
$$3^{\Box} = 81$$

f)
$$\square^7 = 1$$

Problem solving!

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

Squares & Cubes CrossNumber Use the clues to work out which numbers go in the grid. Down 1. 20² $4.\sqrt[3]{216}$ 7. √121 9. Five squared 11. 12² 12 13 12. √ 169 15 16 **Across** 1. The square of 7 2.9 squared 5. 4² 8.5 cubed 10. Square root of 121 13. Three cubed 14. Six squared 15. Square root of 100 16. $\sqrt[3]{2744}$



HOMEWORK 2: FRACTION RECALL

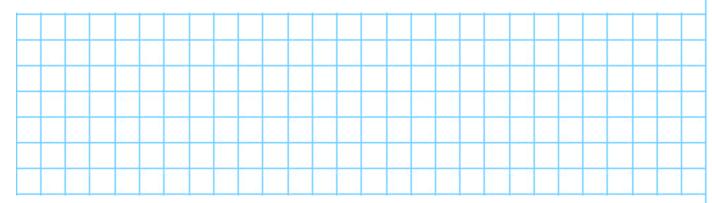
Question 1: Simplify fully





(c)
$$\frac{6}{5}$$
 (d) $\frac{5}{5}$

$$\frac{4}{6}$$

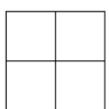


(a)



Shade in $\frac{1}{3}$

(b)



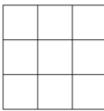
Shade in $\frac{1}{4}$

(c)



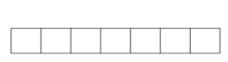
Shade in

(d)



Shade in $\frac{5}{9}$

(e)



Shade in $\frac{2}{7}$

(f)



Shade in $\frac{4}{5}$

Problem solving!



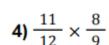
Apply your core skills to the challenge questions below...

AAliinliinli	STEP 1	STEP 2	STEP 3
Multiplying	3 2	3 x 2	Simplify?
Fractions	$-\overline{4}^{\times}\overline{5}^{=}$	4 × 5	= 20

1)
$$\frac{1}{2} \times \frac{1}{3}$$

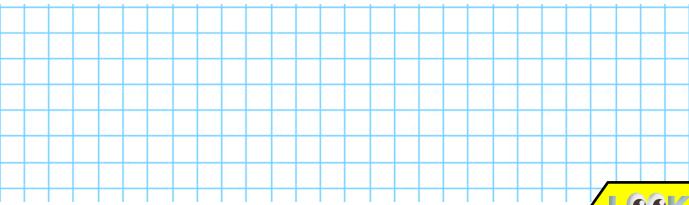
2)
$$\frac{1}{8} \times \frac{2}{3}$$

3)
$$\frac{4}{9} \times \frac{3}{5}$$



5)
$$\frac{2}{9} \times \frac{3}{5} \times \frac{6}{7}$$

6)
$$\frac{2}{9} \times 4$$



Aled feeds his pet cat $\frac{3}{5}$ of a can of cat food each day.

How many cans of cat food should Aled buy each week?





HOMEWORK 3: 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.

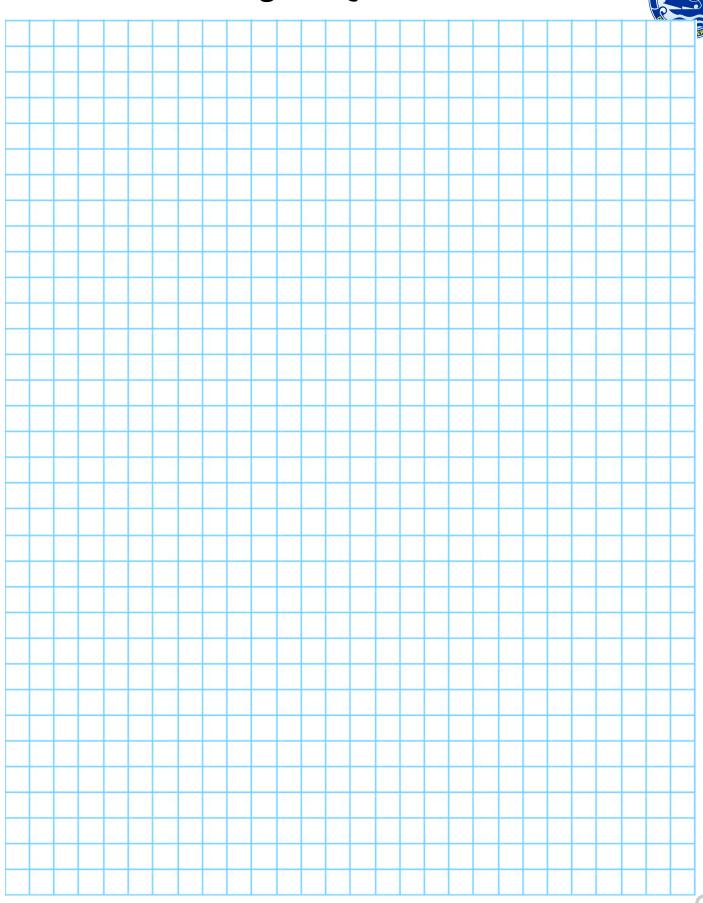
Below are the log in instructions you will need in order to access and complete this homework task.

If you have any issues logging in, you <u>must</u> 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 <u>before</u> the due date and they will print a copy for you to complete.

Additional working out space:





HOMEWORK 4: RESEARCH TASK

The Königsberg Problem

In the 18th century, the city of Königsberg (in Prussia) was split into parts by the river Pregel. There were seven bridges. The people of Königsberg tried to walk across all seven bridges without crossing the same bridge twice.

RESEARCH:

A famous mathematician, Leonhard Euler, examined the Königsberg problem.

- (a) Find out when Euler lived.
- (b) Find out what Euler said about the Königsberg problem.
- (c) Königsberg is now called Kaliningrad and is in Russia. Find out how many of the seven bridges still exist.



Research task:

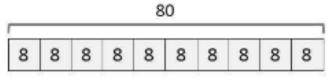


Present your findings for the research task in the box below.

You could draw a poster, write a list of notes, create a storyboardthe options are endless!				



HOMEWORK 5: PERCENTAGES



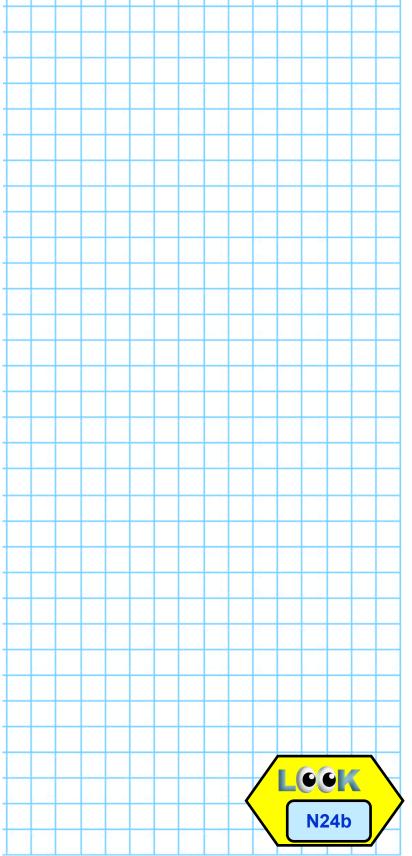
10% of 80 =

20% of 80 =

60% of 80 =

60
6 6 6 6 6 6 6 6 6

- 1) 10% of 60 =
- 2) 20% of 60 =
- 3) 40% of 60 =
- 4) 30% of 60 =



Problem solving!



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

To find 50%:

divide by 2

To find 10%:

divide by 10

To find 1%:

divide by 100

To find 20%:

× 10% by 2

To find 3%:

× 1% by 3



a) 50% of 90

b) 10% of 95

c) 1% of 90

d) 1% of 240

e) 50% of 240

f) 1% of 35

g) 20% of 220

h) 5% of 220

i) 25% of 220

i) 3% of 220

k) 40% of 220

- I) 80% of 220
- Use the cards (once each) to complete these statements.
- a) 50% of £9 = _____
- b) 1% of £45 = _____
- c) 10% of £450 = _____
- d) 50% of ____ = £35
- e) 10% of ____ = 7p
- f) 1% of ____ = 7p

45p

£45

70p

£4.50

£70



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

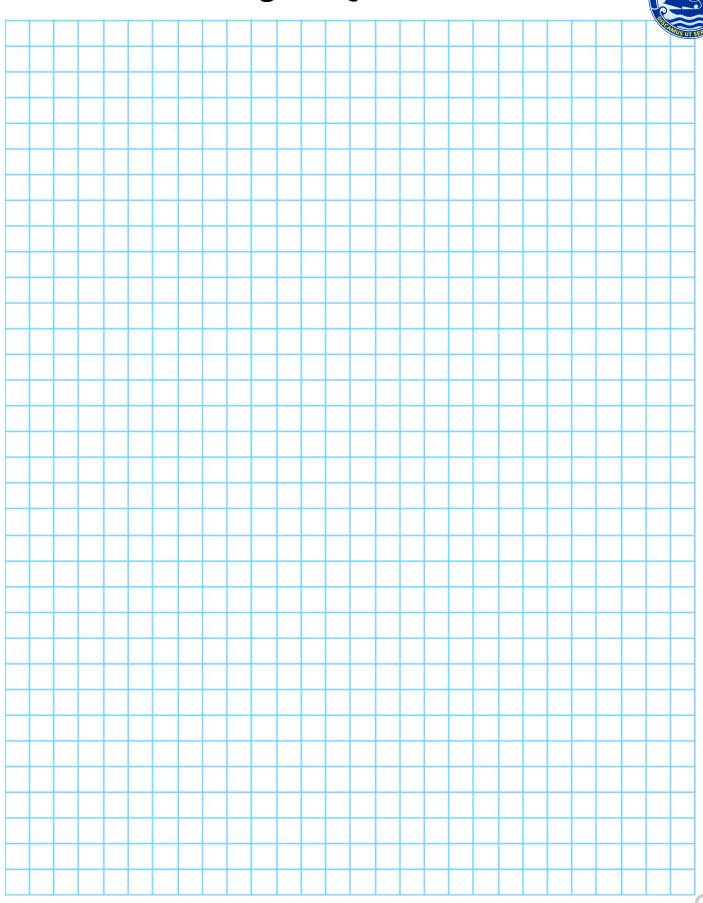
Below are the log in instructions you will need in order to access and complete this homework task.

If you have any issues logging in, you <u>must</u> 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 <u>before</u> the due date and they will print a copy for you to complete.

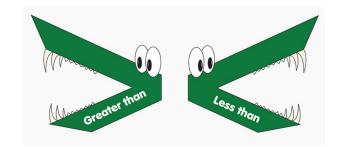
Additional working out space:





HOMEWORK 7: NUMERACY

< less than > greater than



Section A

Statement	True or False
3 < 8	
2 > 10	
11 < 4	
4 > 3	
6 < 9	
13 < 14	

Statement	True or False
3 > 0	
6 > 2	
1 > 3	
6 < 2	
5 > 6	
0 < 10	

Section B

Statement	True or False
5.7 < 5.2	
4.9 > 4.1	
9.0 > 9.3	
8.4 < 4.8	
7.6 < 7.6	
7.2 > 7.0	

Statement	True or False
0.3 < 0.5	
0.6 > 0.7	
0.05 < 0.06	
0.35 > 0.3	
0.62 < 0.6	
0.01 < 0.1	

Section C

Statement	True or False
152.7 < 105.3	
25.9 > 56.7	
70.12 > 70.36	
5.42 < 4.57	
0.53 < 0.71	
0.24 < 0.78	

Statement	True or False
6.42 > 6.24	
71.17 > 71.71	
0.83 < 0.38	
0.41 > 0.14	
0.6 < 0.7	
0.554 > 0.545	

Problem solving!

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

N2b

Work out the value indicated by the arrow.

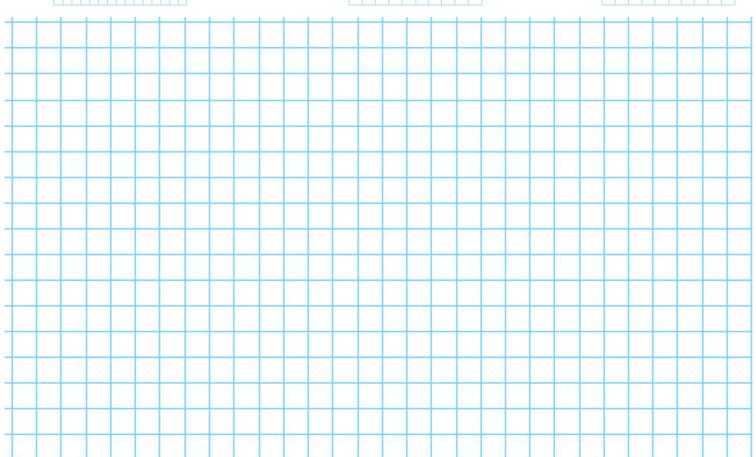














HOMEWORK 8: DIVIDING FRACTIONS RECALL

- Keep the first fraction the same.
- Change the division to a multiplication.
- Flip the second fraction.

4	5	4	9	36
11	÷ - 9	$=\frac{1}{11}$	$\times \frac{}{5}$	$={55}$

Division	Equivalent Multiplication	Unsimplified Answer	Simplified Answer (where possible)
$\frac{2}{3} \div 6$	$\frac{2}{3} \times \frac{1}{6}$	2 18	
$\frac{2}{5} \div 4$	$\frac{2}{5} \times \frac{1}{4}$		
$\frac{5}{8}$ ÷ 10	_ × _		
$\frac{7}{10} \div \frac{3}{4}$	$\frac{7}{10} \times \frac{4}{3}$		
$\frac{6}{11} \div \frac{2}{3}$			
$\frac{1}{10} \div \frac{4}{5}$			
$\frac{11}{16} \div \frac{3}{4}$			
	$\frac{2}{9} \times \frac{6}{5}$		
Q÷Q	$\frac{3}{8} \times \square$	12 24	
$\frac{\square}{\square} \div \frac{2}{5}$	-×-	15 20	

Problem solving!

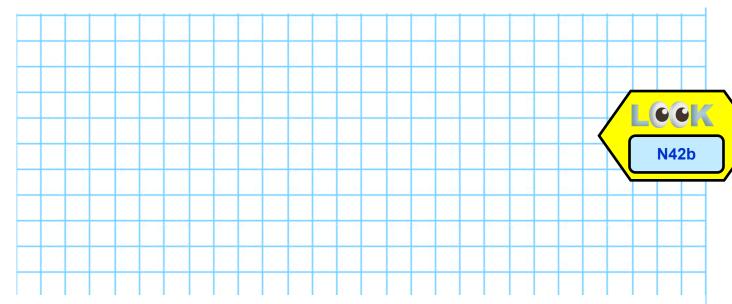


Apply your core skills to the challenge questions below...

1)
$$\frac{1}{4} \div \frac{1}{3}$$

2)
$$\frac{1}{7} \div \frac{1}{8}$$

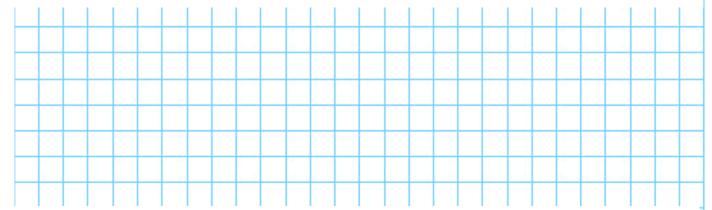
3)
$$\frac{2}{5} \div \frac{3}{4}$$



4)
$$\frac{9}{10} \div \frac{3}{8}$$

5)
$$\frac{4}{5} \div \frac{3}{8} \div \frac{2}{9}$$

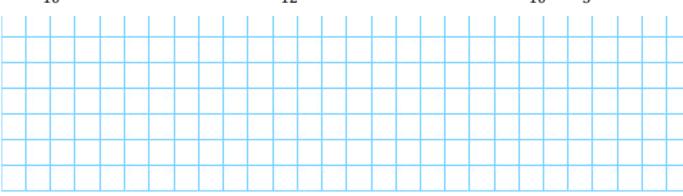
6)
$$\frac{6}{11} \div 4$$



7)
$$\frac{7}{10} \div 9$$

8)
$$\frac{9}{12} \div 54$$

9)
$$1\frac{1}{10} \div \frac{2}{5}$$





HOMEWORK 9: MATHSWATCH



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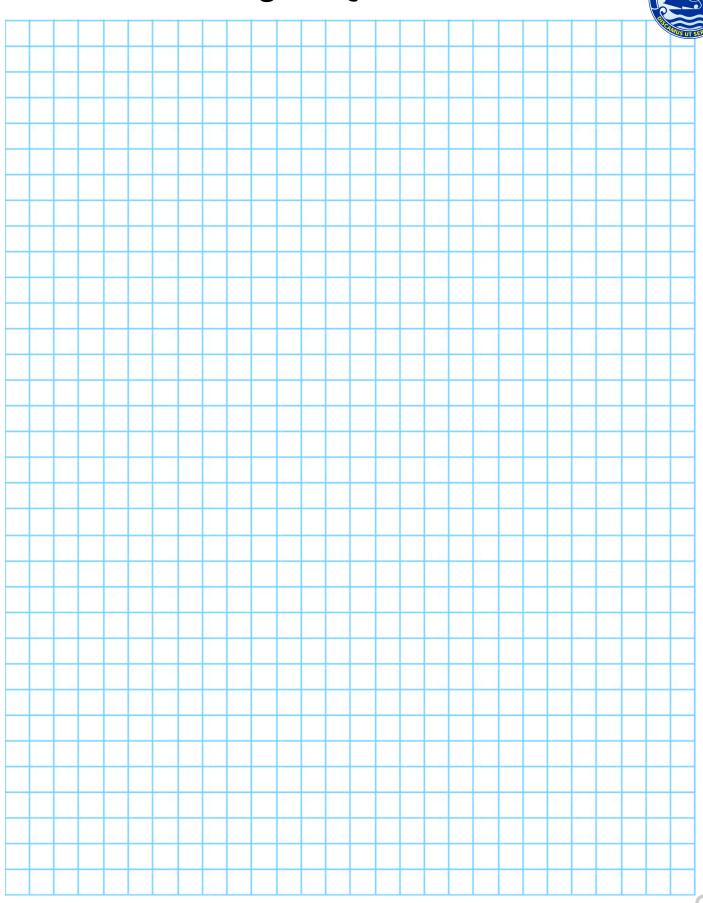
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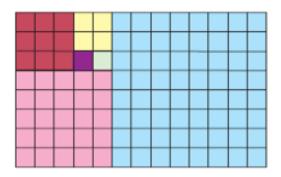
Additional working out space:





HOMEWORK 10: RESEARCH TASK

The Fibonacci sequence



This rectangle is made from six squares drawn on centimetre squared paper. Write down the length of one side in each of the squares.

Can you arrange the numbers to make a pattern? What would be the next number in your pattern? Write down a rule for your pattern.

Write down your answers for the questions above here:

Fibonacci was born in Pisa, Italy. He lived in the 13th century. He worked on the pattern 1, 1, 2, 3, 5, 8, ...

Each number is found by adding the two terms immediately before it. The next number is 13 from 5 + 8.

Fibonacci found that these numbers helped to explain things to do with spirals in flowers, shells, the breeding of rabbits, pine cones, the family tree of honeybees and many other cases.



RESEARCH:

- (a) Find out more about Fibonacci's life.
- (b) List as many things as you can which are connected to Fibonacci numbers.

Research task:



Present your findings for the research task in the box below.

		\neg
		I
		J
		- 1
		- 1
		- 1
		Į
		Į
		J
		J



HOMEWORK 11: PERCENTAGES 2

- Find the percentage of the amount
- To increase, add it on
- To decrease, take it off

			 					-		
Increase the following amounts by	10%						- 5			
£20					- 52			7 74		-
£16					- 5		- 6			
£32				- 1			55	- //-		
£60										
£400					- 22		Ş	2 22		
£2700										
£18'500					- 8		16	()		
							8	2 22		
Decrease the following amounts by	50%									
£30		+								-
£14		1 23 2								_
£22		_								
£70		_								
£800										_
£3400								LC	<u>ek</u>	
£26'200		1.5			- 29		1		R9	

Problem solving!

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



For each of the following items in a sale, find: a) the amount the price is reduced. CCK b) the new price. R9a SUITS £100.00 10% OFF GLOVES £5.00 50% OFF SOCKS £2.40 25% OFF BELTS £8.50 10% OFF Last year, there were 20 students in a class. 1: This year, there are 30% more students. How many students are in the class this year? A TV normally costs £520. 2: In a sale, all prices are reduced by 10% Calculate the sale price of the TV



HOMEWORK 12: MATHSWATCH



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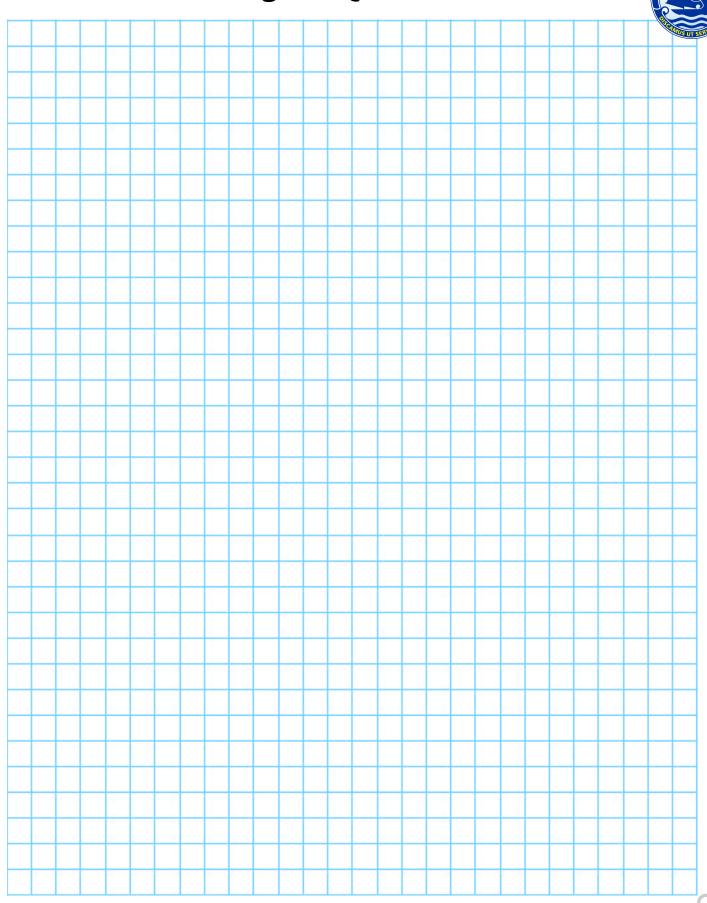
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Additional working out space:



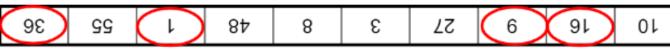
ANSWERS—WEEK 1

l = ¼∭ (}

c) 5_□ = 16

Þ

Which of the following are square numbers? Choose all that apply.



Which of the following are cube numbers? Choose all that apply.

72 125 (1000) ١8 **7**9 9 6 100

:bui =

f8 = □6 (9

p) [∷₃ = 8

81

- a) a square number between 20 and 30 52
- b) a cube number less than 5 1
- c) an odd square number between 50 and 100
- d) a cube number that ends in 7 27

Work out the missing values:

13 カレ

18

7

6

18 + 6 = 51

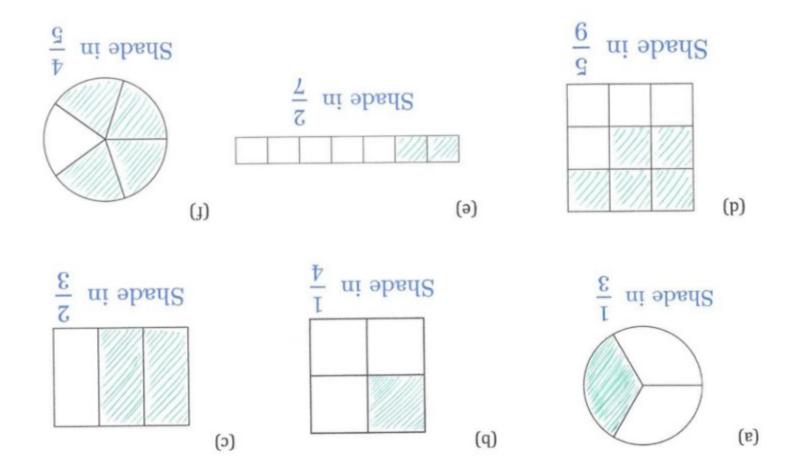
Which two of these numbers add up to a cube number?

Which two of these numbers add up to a square number?

L

7	\		0	 		9	۱4
7		L	2		G		1 21
l _{II}	10			G	7 6	1 8	
						l	0
		9	ŀ _s				0
9 ,			١٤	8 2		6	۲ _۱

ANSWERS—WEEK 2



$$\frac{7}{8} \frac{71}{6} \frac{9}{9} \frac{9}{1} \frac{9}{7} \frac{9}{9} \frac{9}{1} \frac{9}{8} \frac{9}{1} \frac{9$$

Question 1: Simplify fully

v	
$* \times \frac{6}{7}$ (9	$\frac{6}{8}$ (9
$\frac{2}{5} \times \frac{2}{3} \times \frac{2}{6} \times \frac{1}{6}$	2) 32 (s
$\frac{8}{4} \times \frac{8}{21}$ (\$\psi\$	3) t
$\frac{8}{5} \times \frac{6}{4}$ (ϵ	3) 12
$\frac{2}{8} \times \frac{1}{8}$ (2	<u>1</u> (2
$\frac{5}{1} \times \frac{3}{1}$	<u>−9</u> (τ
answers in lowest terms:	
Multiply the fractions below. Express your	
Skill Questions	

How many cans of cat food should Aled buy each week? Aled feeds his pet cat $\frac{3}{5}$ of a can of cat food each day.

$$\frac{5}{7} = \frac{1}{12} = \frac{1}{12} \times \frac{5}{2}$$

(E) S CIM3

ANSWERS—WEEK 5

Work out:

Use the cards (once each) to complete these statements.

$$\frac{d3h}{d5} = 3h3 \text{ fo } \% \text{ f } (d)$$

$$\frac{03.43}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

$$\frac{2h3}{d5} = 93 \text{ fo } \% \text{ f } (5)$$

073

SectionA

TRUE	0 l > 0
FALSE	9 < 9
FALSE	Z > 9
FALSE	1 > 3
BUAT	2 < 9
HURT	3 > 0
True or False	Statement

BUAT	13 < 14
BUAT	6 > 9
TRUE	4 > 3
FALSE	カ> ↓↓
FALSE	2 > 10
TRUE	3 > £
True or False	Statement

Section B

AURT	1.0 > 10.0
FALSE	9.0 > 20.0
TRUE	6.0 < 35.0
TRUE	90.0 > 30.0
FALSE	7.0 < 0.0
BUAT	6.0 > 6.0
True or False	Statement

0.7 < 2.7
8.T > 8.T
8.4 > 4.8
5.6 < 0.6
1.4 < 6.4
S.3 > 7.3
Statement

Section C

JUAT	945.0 < 458.0
BUAT	7.0 > 8.0
BUAT	41.0 < 14.0
FALSE	85.0 > 58.0
FALSE	17.17 < 71.17
BUAT	42.9 < 24.9
True or False	Statement

87.0 > 42.0
17.0 > £3.0
73.4 > S4.8
36.07 < 21.07
7.92 < 6.32
152.7 < 105.3
Statement

1. 46 2. 2. 0. 2. 14.8 4. 15.2 5. 0.2 2. 04.1 8.0 .21 20.1 .11 20.0 .01 41.2 .9 2.2 .8 7.7 .7 25.9 18. 4.35 15. 10.1 16. 16 16. 16 17. 88 18. 4.35

ANSWERS—WEEK 8

± 8	<u>50</u> 12	$\frac{10}{3} \times \frac{5}{2}$	$\frac{10}{3} \div \frac{2}{5}$
<u>7</u>	12 <u>42</u>	$\frac{3}{8} \times \frac{3}{8}$	$\frac{5}{4} \div \frac{5}{8}$
<u>ST</u>	<u>5⊅</u> 77	$\frac{S}{9} \times \frac{6}{7}$	$\frac{9}{5} \div \frac{6}{7}$
11	<u>8†</u> ††	$\frac{11}{5} \times \frac{31}{51}$	$\frac{17}{5} \div \frac{11}{3}$
<u>1</u>	<u>0⊅</u> S	$\frac{10}{5} \times \frac{10}{5}$	$\frac{1}{5} \div \frac{1}{5}$
<u>11</u>	81 22	$\frac{2}{\epsilon} \times \frac{11}{6}$	$\frac{2}{5} \div \frac{11}{6}$
<u>ST</u> †T	<u>30</u> 87	$\frac{10}{2} \times \frac{3}{4}$	$\frac{10}{5} \div \frac{10}{5}$
9 <u>t</u>	<u>08</u> S	$\frac{10}{2} \times \frac{10}{8}$	$01 \div \frac{2}{8}$
<u>01</u>	<u>7</u>	$\frac{1}{2} \times \frac{2}{2}$	$\Phi \div \frac{Z}{Z}$
<u>6</u> ī	2 81	$\frac{2}{5} \times \frac{2}{5}$	$9 \div \frac{\varepsilon}{7}$
Simplified Answer (where possible)	bəifilqmiznU nəwznA	Equivalent Multiplication	noisivia

$$\frac{8}{7}$$
 (2

± (t

Divide the fractions below. Express your

answers in lowest terms:

$$\frac{3}{1} \div \frac{1}{1}$$

$$\frac{1}{8} \div \frac{1}{7}$$
 (2

3)
$$\frac{2}{4} \div \frac{3}{4}$$

$$\frac{8}{8} \div \frac{10}{6}$$
 (4)

$$\frac{2}{8} \div \frac{3}{8} \div \frac{6}{12}$$

$$4 \div \frac{6}{11}$$
 (9

$$6 \div \frac{01}{2}$$
 (2

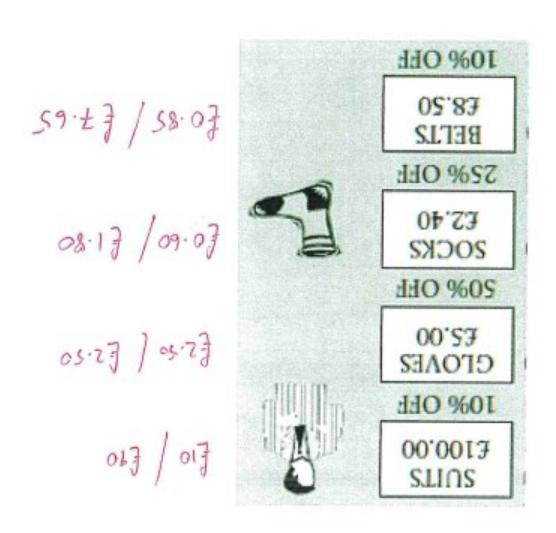
$$\frac{3}{1} \div \frac{10}{1} \cdot \frac{16}{1}$$

ANSWERS—WEEK 11

£20350
07623
0773
993
535.20
09.713
523
%01

£13100
61700
5400
£32
FII
73
£12
%0 <u>9</u>

For each of the following items in a sale, find: a) the amount the price is reduced. b) the new price.



(7) Ede8 (1) 5e

ANSWERS—WEEK 1

In total, how much of the cake has Kenneth eaten?



On Tuesday he ate $\frac{3}{8}$ of the same cake.

On Monday, Kenneth ate $\frac{2}{8}$ of a cake.

What fraction of the matches did they lose?

They drew $\frac{2}{9}$ of their matches.

In one season, a netball team won $\frac{x}{9}$ of their matches.

1 noitseuQ

(p) 2ecm² (c) 24cm² (d) 42cm² (a) 45cm²

Question 2

(b) 35cm² (c) 13.5cm²

3cm

(circumference)

Circle which is the largest

(a) 12cm²

12cm

Radius Diameter **Gircumference** Match each diagram to its label

M28

length

The area of the triangle is equal to the area of the rectangle.

Work out the length of the rectangle

ANSWERS—WEEK 4

radius

diameter

Sven measures the circumference, diameter and radius of the pizza.

ANSWERS—WEEK 7

hai	= %01	92 = %01	097
9t	= %01	088 = %08	092
Ы	= %5	011 = %05	380
9	= %8	30% = %08	500
Ł	= %7	20% = %0Z	320
998	= %08	10% = 122	1220
841	= %07	ht = %0I	044
5.5	= %1	εε = %0I	330
119	≠ %0ħ	9/ = %01	091
-48	= %08	&2 = %OI	087
128	= %07	t9 = %01	019

Copy and complete the table.

	24 20% of 55 11	8 10% of 800 % 10 30% of 60 18
	23 10% of 55 5.5	Ø 051 10 %07 (12) 20% of 120 %01 (2)
30 60% 0170 42	22 20% of 25	9 10% of 160 lb (14) 20% of 90 lb
29 30% of 250 PS	5.5 25 30 %01 (12)	2 10% of 120 15 13 20% of 80 16
38 30% of 120 36	20 30% of 150 to	4) 10% Of 30 % Of 30 % Of 10
Ohl 00/ JO %07 (ZZ)	10 30% 01 61	3 10% of 80 % 11 20% of 60 12
14 14 10 901 97	4 08 30 %0E 81	\$ 10% of 70 7 10 10% of 85 %.5
98 10 %01 (57)	17 02 30 %08 (1)	19 59 10 %01 6 9 09 10 %01 1
		Work out
		000
		W

Skill Practice

Where do you see percentages in every day life?

Use Your Maths!

NCEPRET PERLEM ICREATON FARCHOR

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

Literacy challenge — Anagrams!

ANSWERS-WEEK 10

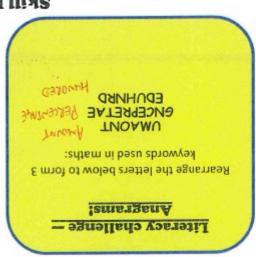
6.11	+.1	4.5	8.9	89
4.41	1.2	7.4	4.8	78
1-4	t	41	82	780
++	11	22	44	0440
74	9	71	48	240
5.75	5.t	51	30	300
12	E	9	71	120
tl	7	t	8	08
% ⁷ / ₄ 1	57%	968	%0I	Money (€)



Skill Practice

How are percentages used in shops?

Use Your Maths!



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

