

Benjamin Britten Academy of Music and Mathematics

MATHEMATICS HOMEWORK BOOKLET

Year 8 Book C
AUTUMN 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	Four Operations
2	Simplifying algebra
3	Research task
4	Negative numbers
5	Solving equations
6	Mathswatch
7	Inequalities
8	Fractions
9	Research task
10	Substitution
11	Area and perimeter
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

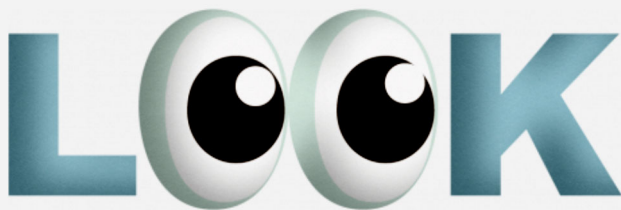
Password—your DOB (format: monthDYyyy)

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: FOUR OPERATIONS

Recall and Recap: Core operations skills

Copy and complete the squares.

1

+	7	5	8
8	15		
6			
9			

2

+	16	24	49
13			
36			85
48			

3

-	8	6	9
27	19		
29			
35			

4

-	27	25	19
68		43	
49			
37			

- 1 What is 5 times 20?
- 2 Multiply 4 by 6.
- 3 Find 4 lots of 30.
- 4 Find the product of 9 and 3.
- 5 Will feeds his fish 4 times each week. How many times does he feed them during 7 weeks?
- 6 What is 64 multiplied by 100?
- 7 How many days are there in 3 weeks?
- 8 Divide 36 by 4.
- 9 Share 26 by 2.
- 10 How many 5s make 45?

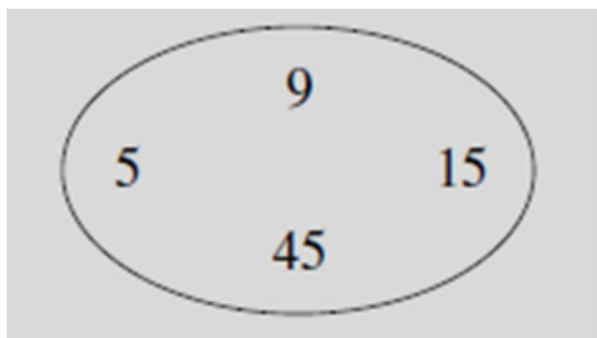
Write your answers below:

LOOK

N₃, N₄

Problem solving!

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



- (a) What is the smallest number multiplied by itself?
- (b) Which number is five times the second smallest number?
- (c) Six different products can be made using pairs of the four numbers. Can you find them all?



HOMWORK 2: SIMPLIFYING ALGEBRA

Skills practice: Simplifying

Collect like terms where possible.

- | | | | | |
|--------------|--------------|--------------|--------------|-------------|
| 1 $4n + 2n$ | 2 $3a + 5a$ | 3 $4m + 4m$ | 4 $8b - 5b$ | 5 $6y - 2y$ |
| 6 $8p - 6p$ | 7 $4a + a$ | 8 $7n + n$ | 9 $7q - q$ | 10 $5m + 3$ |
| 11 $4y - 2$ | 12 $3x + 4y$ | 13 $4a + a$ | 14 $7b + 3c$ | 15 $3n + 5$ |
| 16 $9x - 4x$ | 17 $7n - 3$ | 18 $6p + 5p$ | 19 $9 + 2q$ | 20 $4m - m$ |

Write your answers below:

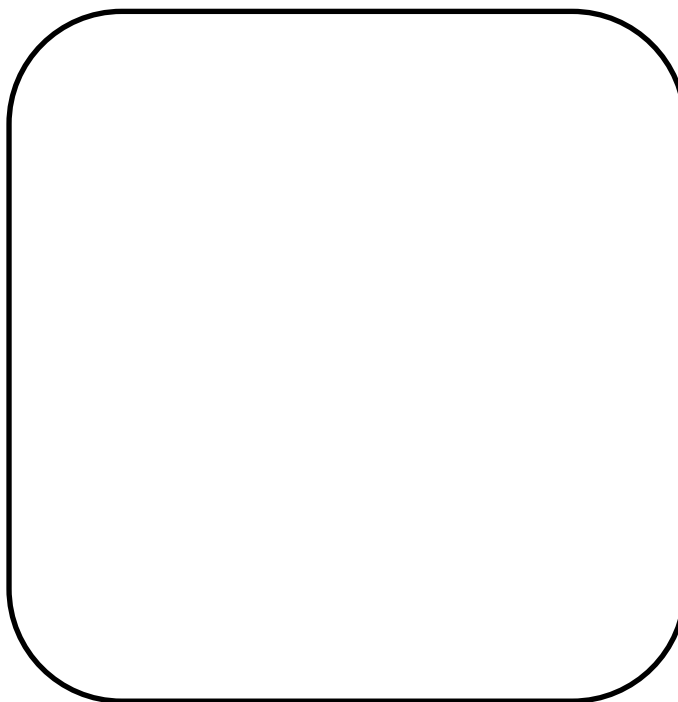
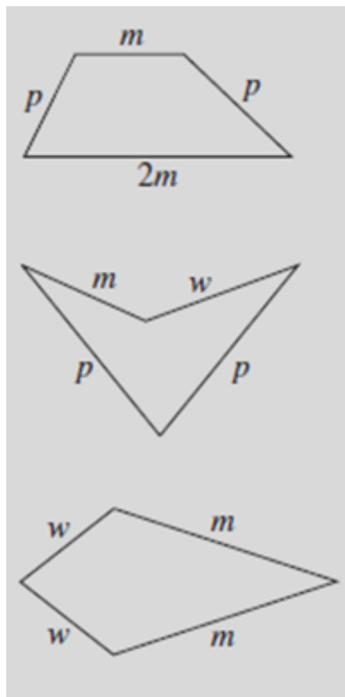
LOOK

A6

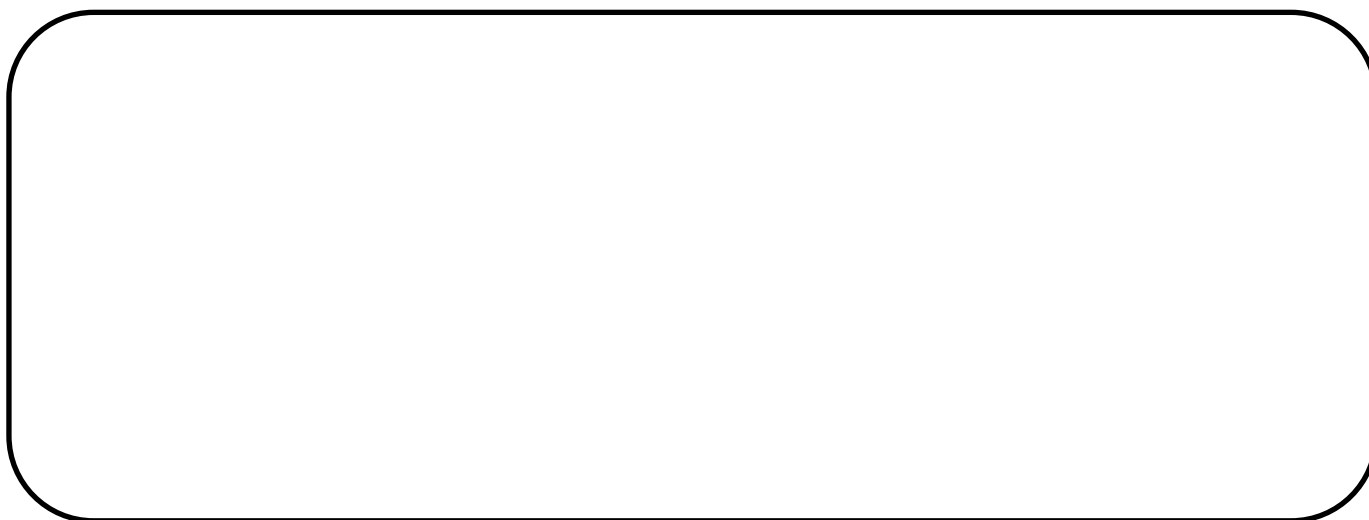
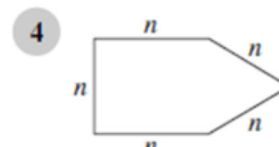
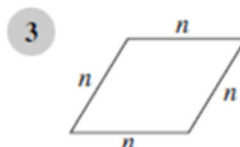
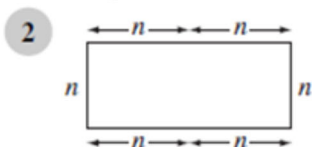
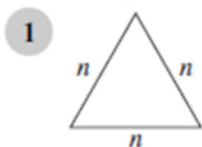
Problem solving!

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

Find the perimeter of each shape, using the letters m , p and w .



Find the perimeter of these shapes if $n = 4$ cm





HOMEWORK 3: RESEARCH TASK

The Eye of Horus

In Ancient Egypt, Horus was represented as the falcon-headed god. He was the ultimate god of mathematics.

All Egyptian fractions were unit fractions like $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{8}$.

The eye of Horus represented the sacred unit fractions. The 'eye of Horus' symbol was used to protect from evil.



RESEARCH:

- Find out more about the god Horus.
- Find out how the Egyptians represented the fraction $\frac{1}{3}$.



Research task:

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

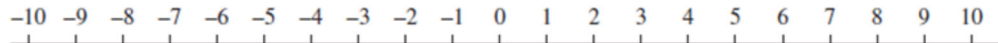
You could draw a poster, write a list of notes, create a storyboard...the options are endless!



HOMEWORK 4: NEGATIVE NUMBERS

Recall and Recap: Negative number skills

M



- 1 Find the difference between
- (a) -6 and 2 (b) -7 and -2 (c) -4 and 3
(d) -2 and 3 (e) -8 and -3 (f) -2 and 5

- 2 Which temperature is the coldest?

- 3 Put these numbers in order, smallest first.

- (a)

-2	1	0
-3	2	

 (b)

4	-2	1
-3	-4	

 (c)

-1	4	-5
1	-2	

- 4 Copy and complete the table below.

Temperature °C	Change °C	New temperature °C
4	falls by 5	
-3	rises by 6	
-6	rises by 2	
-9	falls by 1	
3	falls by 6	
-2	rises by 4	

- 5 What must you add to -7 to make -1 ?

Write your answers below:

Problem solving!

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



(a)

Old	Change	New
-3°C	$+5^{\circ}\text{C}$	2°C
4°C	-7°C	
-6°C	-2°C	
5°C	-6°C	
1°C	-4°C	
-9°C	$+4^{\circ}\text{C}$	

(b)

Old	Change	New
2°C	-6°C	-4°C
	$+5^{\circ}\text{C}$	1°C
	-4°C	-2°C
	-6°C	-5°C
	$+8^{\circ}\text{C}$	3°C
	-1°C	-1°C

Show your methods here:



HOMWORK 5: SOLVING EQUATIONS

Skills practice: Forming equations

For each question, write down an equation using the given letter.

- 1 I think of a number n , add 6 and get the answer 10.
- 2 I think of a number w , add 3 and get the answer 12.
- 3 I think of a number m , subtract 6 and get the answer 5.
- 4 I think of a number a , subtract 10 and get the answer 14.
- 5 I think of a number y , subtract 8 and get the answer 12.
- 6 I think of a number n , subtract 15 and get the answer 40.
- 7 I think of a number p , add 7 and get the answer 16.
- 8 I think of a number m , add 4 and get the answer 19.
- 9 I think of a number y , add 9 and get the answer 15.
- 10 I think of a number w , subtract 20 and get the answer 13.



A12

Write your answers below:



Problem solving!

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

Find the value of n in each of these equations.

$$3n + 7 = 13$$

$$2n + 8 = 12$$

$$6n - 2 = 16$$

$$5n + 3 = 18$$

$$3n - 6 = 3$$

$$4n - 1 = 11$$



Show your methods here:



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.



HOMWORK 7: INEQUALITIES

Recall and Recap:

Use the correct symbol ($<$ or $>$) between each pair of values. The first few are done for you.

6  8	11  3	4 $<$ 23
7 6	0 9	3 -3
-8 -2	$\frac{1}{2}$ $\frac{1}{3}$	0.6 0.58

Use the correct symbol between each pair of sums. You may need to use an equals sign ($=$).

$3 + 5$ $9 - 3$	2×6 3×4	$3 - 8$ $1 - 7$
12×2 $100 \div 4$	$35 \div 7$ $9 \div 2$	$-8 - 4$ 3×-4
$\frac{1}{2} + \frac{1}{4}$ $\frac{1}{5} + \frac{1}{6}$	$-6 - 3$ $-12 + 3$	$0.3 + 0.02$ $0.2 + 0.2$

Write your answers below:

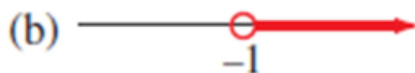
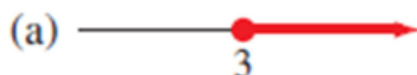
LOOK

A20

Problem solving!

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

Write down the inequalities displayed.



Show your methods here:



HOMWORK 8: MULTIPLYING AND DIVIDING FRACTIONS

Skills practice: Fraction work

Find $\frac{1}{10}$ of:

- | | |
|------|---------|
| ① 30 | ⑤ 70 cm |
| ② 80 | ⑥ 1 m |
| ③ 20 | ⑦ 40p |
| ④ 50 | ⑧ £1.00 |

Find $\frac{1}{5}$ of:

- | | |
|------|---------|
| ⑨ 10 | ⑬ 15 cm |
| ⑩ 30 | ⑭ 50 cm |
| ⑪ 25 | ⑮ 40p |
| ⑫ 45 | ⑯ 35p |

Find $\frac{1}{3}$ of:

- | | |
|------|---------|
| ⑰ 9 | ⑳ 18 cm |
| ⑱ 15 | ㉑ 27 cm |
| ㉒ 21 | ㉓ 30p |
| ㉔ 12 | ㉕ 24p |

Find $\frac{1}{4}$ of:

- | | |
|------|---------|
| ⑳ 8 | ㉓ 16 cm |
| ㉔ 32 | ㉕ 28 cm |
| ㉗ 24 | ㉘ 40p |
| ㉙ 36 | ㉚ 20p |

Write your answers below:

LOOK

N33



Problem solving!

1 $\frac{3}{8}$ of £24 = ?

2 $\frac{2}{5}$ of £15 = ?

3 $\frac{3}{4}$ of £36 = ?

4 $\frac{4}{7}$ of £84 = ?

5 $\frac{5}{9}$ of £108 = ?

6 $\frac{2}{3}$ of £216 = ?





HOMWORK 9: RESEARCH TASK

Napier's rods

An early calculator was invented by John Napier in the sixteenth century.



RESEARCH: Find out:

- (a) When were Napier's rods most widely used?
- (b) In which kinds of jobs were they used?
- (c) How can Napier's rods be used to multiply by 2-digit numbers?
- (d) Can Napier's rods be used for division?



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 storyboard...the options are endless!



HOMWORK 10: SUBSTITUTION

Recall and Recap: Substitution practice

In Questions (1) to (16) find the value of each expression when $a = 4$, $b = 2$ and $c = 3$.

(1) $7a$

(5) $a - b$

(9) $a^2 + c^2$

(13) $b(a + c)$

(2) ab

(6) $3a - b$

(10) $2a + 4c$

(14) $\frac{a}{b}$

(3) bc

(7) c^2

(11) $5a - 3b$

(15) $c(2a + 1)$

(4) $4c$

(8) a^2

(12) $4(a + b)$

(16) $\frac{2c}{b}$

Write your answers below:

LOOK

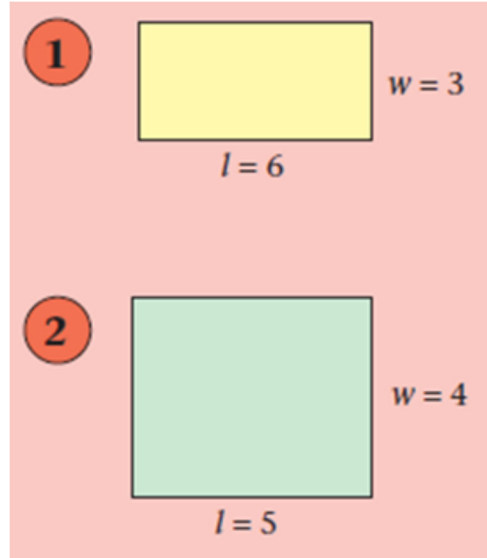
A10

Problem solving!

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



use the formula $A = lw$ to find the area of each rectangle.



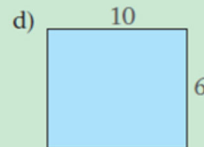
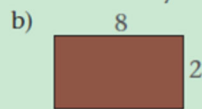
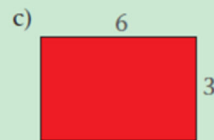
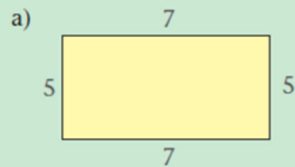
Show your methods here:



HOMWORK 11: AREA AND PERIMETER

Skills practice: Calculating areas and perimeters

1 Find the perimeter of each rectangle. All lengths are in cm.



2 Find the area of each rectangle in Question 1 above.

3 Find the perimeter of each picture.



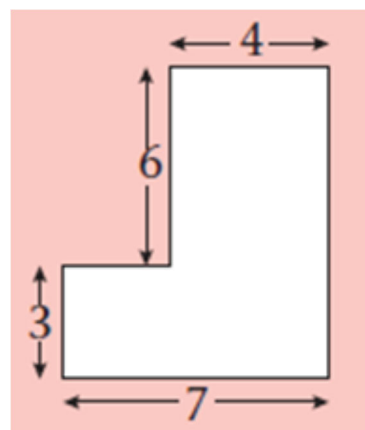
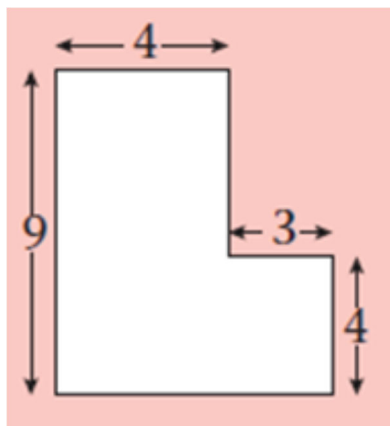
Write your answers below:

LOOK

G20

Problem solving!

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



Find the perimeter of each shape.

Show your methods here:



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.

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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.

ANSWERS—WEEK 1

Recall and Recap: Core operations skills

1 What is 5 times 20? **100**

2 Multiply 4 by 6. **24**

3 Find 4 lots of 30. **120**

4 Find the product of 9 and 3. **27**

5 Will feeds his fish 4 times each week. How many times does he feed them during 7 weeks? **28**

6 What is 64 multiplied by 100? **6400**

7 How many days are there in 3 weeks? **21**

8 Divide 36 by 4. **9**

9 Share 26 by 2. **13**

10 How many 5s make 45? **9**

Copy and complete the squares.

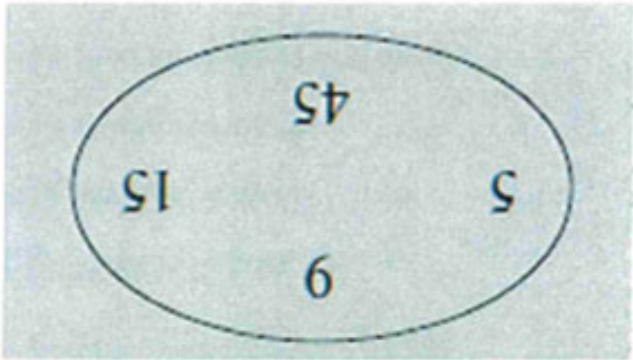
9	16	14	17
6	13	11	14
8	15	13	16
+	7	5	8

48	64	72	97
36	52	60	85
13	29	37	62
+	16	24	49

35	27	29	26
29	21	23	20
27	19	21	18
-	8	6	9

37	10	12	18
49	22	24	30
68	44	43	49
-	27	25	19

(a) What is the smallest number multiplied by itself? 25
(b) Which number is five times the second smallest number? 45
(c) Six different products can be made using pairs of the four numbers. Can you find them all? 45, 75, 225, 135, 405, 675

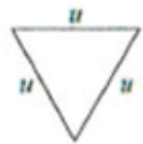


ANSWERS—WEEK 2

Collect like terms where possible.

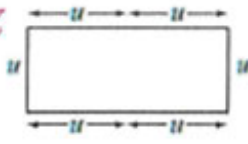
- | | | | | | | | | | | | | | | |
|----|-----------|----|----|-----------|----|----|-----------|-----|----|-----------|----|----|-----------|----|
| 1 | $4n + 2n$ | 6n | 2 | $3a + 5a$ | 8a | 3 | $4m + 4m$ | 8m | 4 | $8b - 5b$ | 3b | 5 | $6y - 2y$ | 4y |
| 6 | $8p - 6p$ | 2p | 7 | $4a + a$ | 5a | 8 | $7n + n$ | 8n | 9 | $7q - q$ | 6q | 10 | $5m + 3$ | - |
| 11 | $4y - 2$ | - | 12 | $3x + 4y$ | - | 13 | $4a + a$ | 5a | 14 | $7b + 3c$ | - | 15 | $3n + 5$ | - |
| 16 | $9x - 4x$ | 5x | 17 | $7n - 3$ | - | 18 | $6p + 5p$ | 11p | 19 | $9 + 2q$ | - | 20 | $4m - m$ | 3m |

Find the perimeter of these shapes if $n = 4$ cm



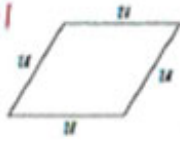
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1



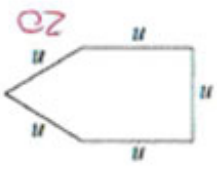
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2



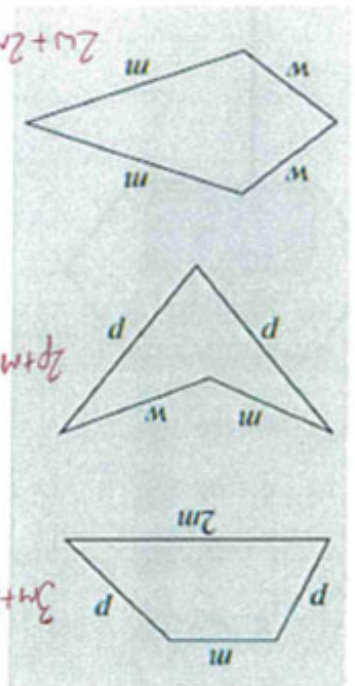
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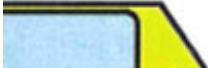


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4



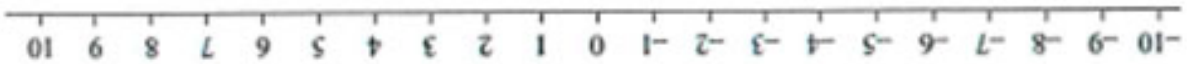
Show your methods here:



ANSWERS—WEEK 4

Recall and Recap: Negative numbers

M



1 Find the difference between

(a) -6 and 2 8 (b) -7 and -2 5 (c) -4 and 3 7

(d) -2 and 3 5 (e) -8 and -3 5 (f) -2 and 5 7

2 Which temperature is the coldest?

-3°C 0°C -5°C -5°C

3 Put these numbers in order, smallest first.

(a)

(b)

(c)

4 Copy and complete the table below.

Temperature °C	Change °C	New temperature °C
4	falls by 5	-1
-3	rises by 6	3
-6	rises by 2	-4
-9	falls by 1	-10
3	falls by 6	-3
-2	rises by 4	2

5 What must you add to -7 to make -1? 6

Old	Change	New
5°C	+5°C	0°C
4°C	-7°C	-3°C
-6°C	-2°C	-8°C
1°C	-4°C	-3°C
-9°C	+4°C	-5°C

(a)

Old	Change	New
2°C	-6°C	-4°C
1°C	+5°C	6°C
-2°C	-4°C	-6°C
-5°C	-6°C	-11°C
3°C	+8°C	11°C
-1°C	-1°C	-2°C

(b)



ANSWERS—WEEK 5

Skills practice: Forming equations

For each question, write down an equation using the given letter.

1 I think of a number n , add 6 and get the answer 10. $n + 6 = 10$

2 I think of a number w , add 3 and get the answer 12. $w + 3 = 12$

3 I think of a number m , subtract 6 and get the answer 5. $m - 6 = 5$

4 I think of a number a , subtract 10 and get the answer 14. $a - 10 = 14$

5 I think of a number y , subtract 8 and get the answer 12. $y - 8 = 12$

6 I think of a number n , subtract 15 and get the answer 40. $n - 15 = 40$

7 I think of a number p , add 7 and get the answer 16. $p + 7 = 16$

8 I think of a number m , add 4 and get the answer 19. $m + 4 = 19$

9 I think of a number y , add 9 and get the answer 15. $y + 9 = 15$

10 I think of a number w , subtract 20 and get the answer 13. $w - 20 = 13$



$$3n + 7 = 13$$
$$2n + 8 = 12$$
$$6n - 2 = 16$$

$$5n + 3 = 18$$
$$3n - 6 = 3$$
$$4n - 1 = 11$$

ANSWERS—WEEK 7

$1/2 + 1/4 > 1/5 + 1/6$	$-6 - 3 = -12 + 3$	$0.3 + 0.02 < 0.2 + 0.2$
$12 \times 2 < 100 \div 4$	$35 \div 7 > 9 \div 2$	$-8 - 4 = 3 \times -4$
$3 + 5 > 9 - 3$	$2 \times 6 = 3 \times 4$	$3 - 8 > 1 - 7$

Use the correct symbol between each pair of sums. You may need to use an equals sign (=).

$-8 < -2$	$1/2 < 1/3$	$0.6 > 0.58$
$7 < 6$	$0 < 9$	$3 > -3$
$6 > 8$	$11 < 3$	$4 < 23$


Use the correct symbol (< or >) between each pair of values. The first few are done for you.

Problem solving!

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

Write down the inequalities displayed.

(a)  $x \geq 3$

(b)  $x < -1$

(c)  $x > 7$

Skills practice: Fraction work

<p>Find $\frac{1}{10}$ of:</p> <p>① 30 $\frac{3}{10}$ ⑤ 70 cm $\frac{7}{10}$ m</p> <p>② 80 $\frac{8}{10}$ ⑥ 1 m $\frac{1}{10}$ m</p> <p>③ 20 $\frac{2}{10}$ ⑦ 40p $\frac{4}{10}$p</p> <p>④ 50 $\frac{5}{10}$ ⑧ £1.00 $\frac{1}{10}$p</p>	<p>Find $\frac{1}{5}$ of:</p> <p>⑨ 10 $\frac{2}{5}$ ⑬ 15 cm $\frac{3}{5}$ m</p> <p>⑩ 30 $\frac{6}{5}$ ⑭ 50 cm $\frac{1}{5}$ m</p> <p>⑪ 25 $\frac{5}{5}$ ⑮ 40p $\frac{8}{5}$p</p> <p>⑫ 45 $\frac{9}{5}$ ⑯ 35p $\frac{7}{5}$p</p>
<p>Find $\frac{1}{3}$ of:</p> <p>⑰ 9 $\frac{3}{3}$ ⑲ 21 $\frac{7}{3}$</p> <p>⑱ 18 cm $\frac{6}{3}$ m</p> <p>⑲ 15 $\frac{5}{3}$ ⑳ 12 $\frac{4}{3}$</p> <p>⑳ 27 cm $\frac{9}{3}$ m</p> <p>㉑ 30p $\frac{10}{3}$p</p> <p>㉒ 24p $\frac{8}{3}$p</p>	<p>Find $\frac{1}{4}$ of:</p> <p>⑲ 8 $\frac{2}{4}$ ㉒ 16 cm $\frac{4}{4}$ m</p> <p>㉓ 32 $\frac{8}{4}$ ㉖ 28 cm $\frac{7}{4}$ m</p> <p>㉔ 24 $\frac{6}{4}$ ㉗ 40p $\frac{10}{4}$p</p> <p>㉕ 36 $\frac{9}{4}$ ㉘ 20p $\frac{5}{4}$p</p>

Problem solving!

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

£9	1	$\frac{3}{8}$ of £24 = ?
£6	2	$\frac{5}{2}$ of £15 = ?
£27	3	$\frac{4}{3}$ of £36 = ?
£48	4	$\frac{7}{4}$ of £84 = ?
£60	5	$\frac{6}{5}$ of £108 = ?
£144	6	$\frac{3}{2}$ of £216 = ?

ANSWERS—WEEK 10

Recall and Recap: Substitution practice

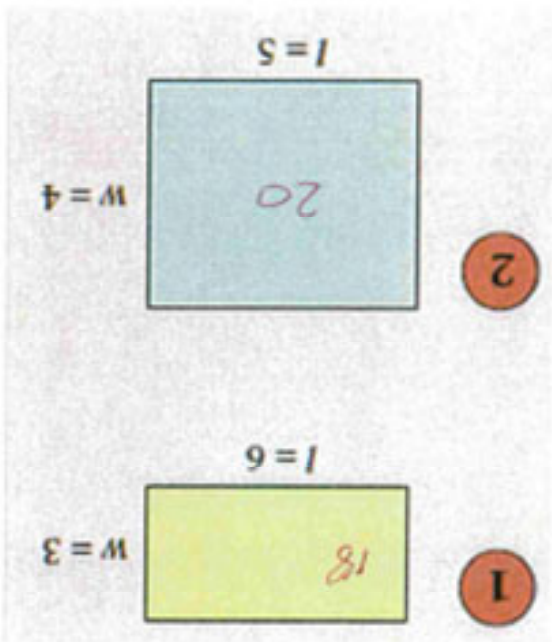
In Questions 1 to 16 find the value of each expression when $a = 4$, $b = 2$ and $c = 3$.

1	$7a$	28	5	$a - b$	2	9	$a^2 + c^2$	25	13	$b(a + c)$	14
2	ab	8	6	$3a - b$	10	10	$2a + 4c$	20	14	$\frac{b}{a}$	2
3	bc	6	7	c^2	9	11	$5a - 3b$	14	15	$c(2a + 1)$	27
4	$4c$	12	8	a^2	16	12	$4(a + b)$	24	16	$\frac{b}{2c}$	3

Problem solving!

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

use the formula $A = lw$ to find the area of each rectangle.





ANSWERS—WEEK 11

LOOK

Skills practice: Calculating areas and perimeters

1 Find the perimeter of each rectangle. All lengths are in cm.

a)  24 cm


b)  20 cm

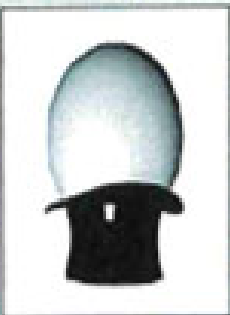
2 Find the area of each rectangle in Question 1 above.

a) 35 cm^2

b) 16 cm^2

3 Find the perimeter of each picture.

a)  12 cm

b)  14 cm

Answers for Question 1:

a) 24 cm (perimeter of yellow rectangle)

b) 20 cm (perimeter of brown rectangle)

Answers for Question 2:

a) 35 cm^2 (area of yellow rectangle)

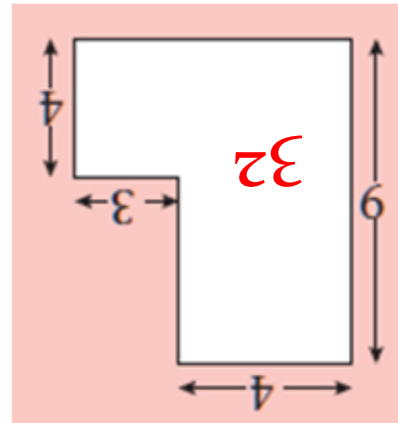
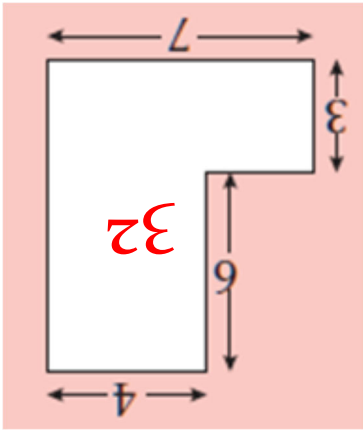
b) 16 cm^2 (area of brown rectangle)

Answers for Question 3:

a) 12 cm (perimeter of globe)

b) 14 cm (perimeter of egg)

Find the perimeter of each shape.



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

