Name:

The Foundations of Algebra

Answers

Additional Tasks

Contents

Quiz 1

3 + 7 = 10	14 – 2 = 12	2 + 9 = 11	7 – 3 = 4	14 + 6 = 20
13 – 5 = 8	2 + 13 = 15	3 – 3 = 0	5 + 9 = 14	9 – 0 = 9
8 + 4 = 12	11 – 8 = 3	14 + 8 = 22	15 – 7 = 8	8 + 8 = 16
18 – 11 = 7	6 + 9 = 15	14 – 8 = 6	18 + 3 = 21	23 – 4 = 19
4 + 28 = 32	23 – 6 = 17	27 + 5 = 32	21 – 9 = 12	9 + 8 = 17

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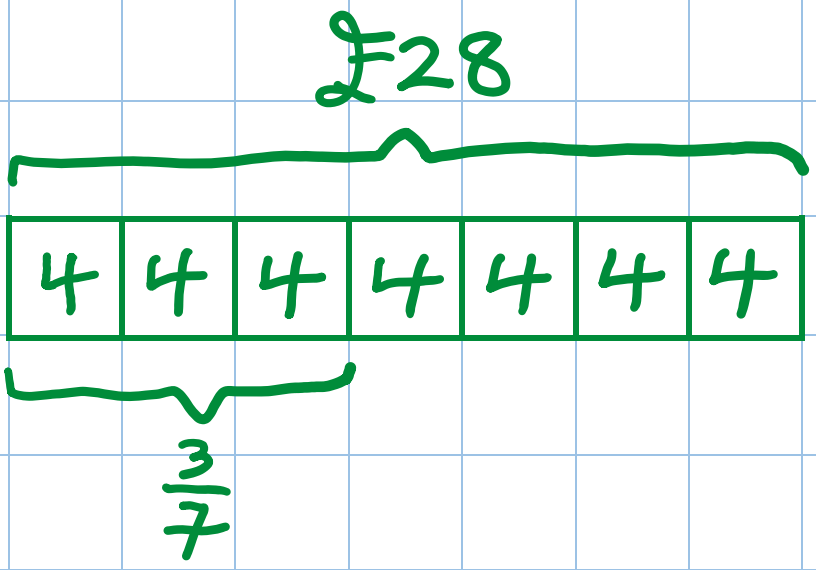
Example 1

Calculate $\frac{3}{7}$ of £28.

Step 1: Draw a bar model



Step 2: Calculate the value of 1 part:

$28 \div 7 = 4$

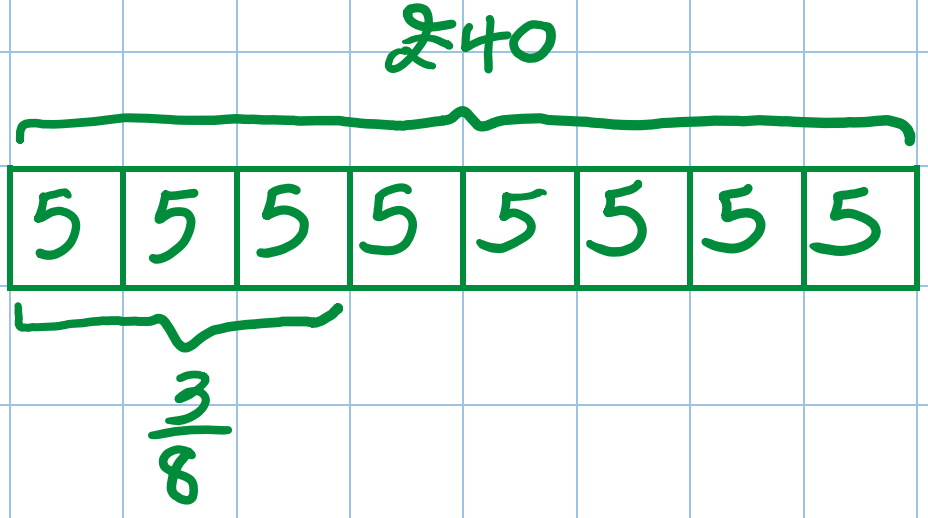
Step 3: Calculate the value of 3 parts:

$4 \times 3 = £12$

Exercise 1

Calculate $\frac{3}{8}$ of £40.

Step 1: Draw a bar model



Step 2: Calculate the value of 1 part:

$40 \div 8 = 5$

Step 3: Calculate the value of 3 parts:

$5 \times 3 = £15$

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Quiz 2

1) Write ten thousand in figures. 10,000	2) 3 – 5 = -2	3) How many days are in April? 30
4) True or false: 3 + 4 = 5 + 2 True (7=7)	5) How many edges does a nonagon have? 9	6) What is half of 42? 42 ÷ 2 = 21
7) 8 × 3 = 24	8) What time is 20 minutes after 4:50 pm? 5:10 pm	9) Rhian buys two dozen eggs. How many eggs is this? 2 × 12 = 24

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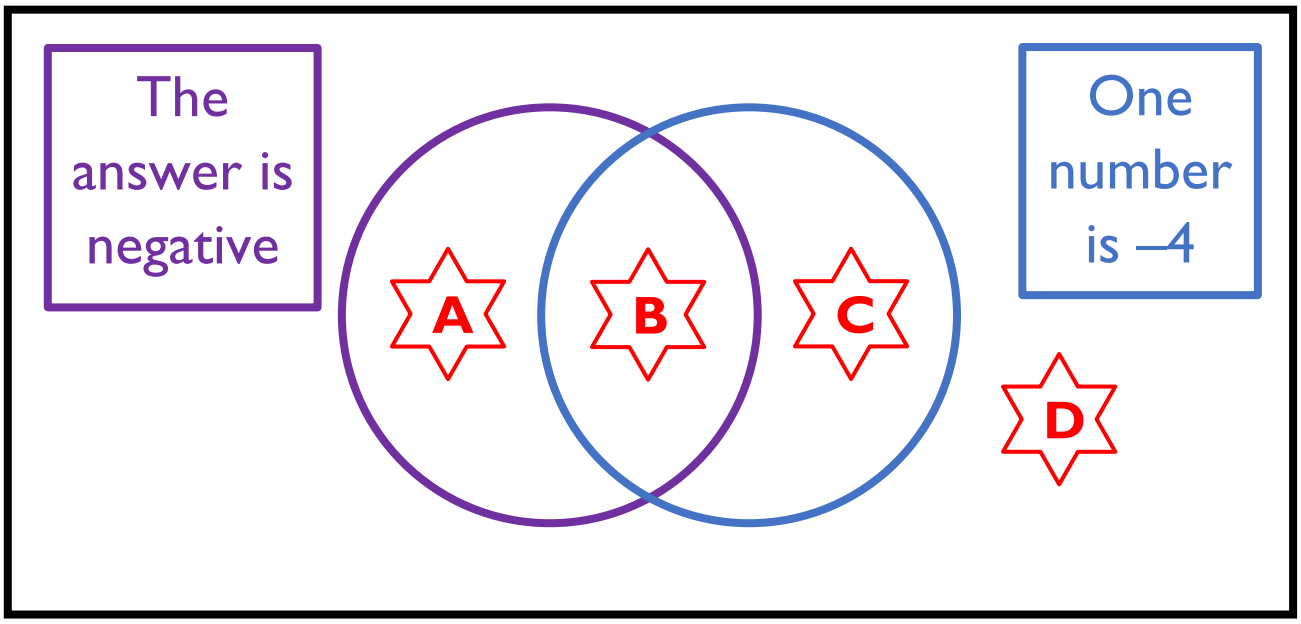
Venn Diagram Challenge 1



Think of a two number addition sum that could fit into each region. If you think a region is impossible to fill, explain why!

E.g.

A $3 + -5 = -2$

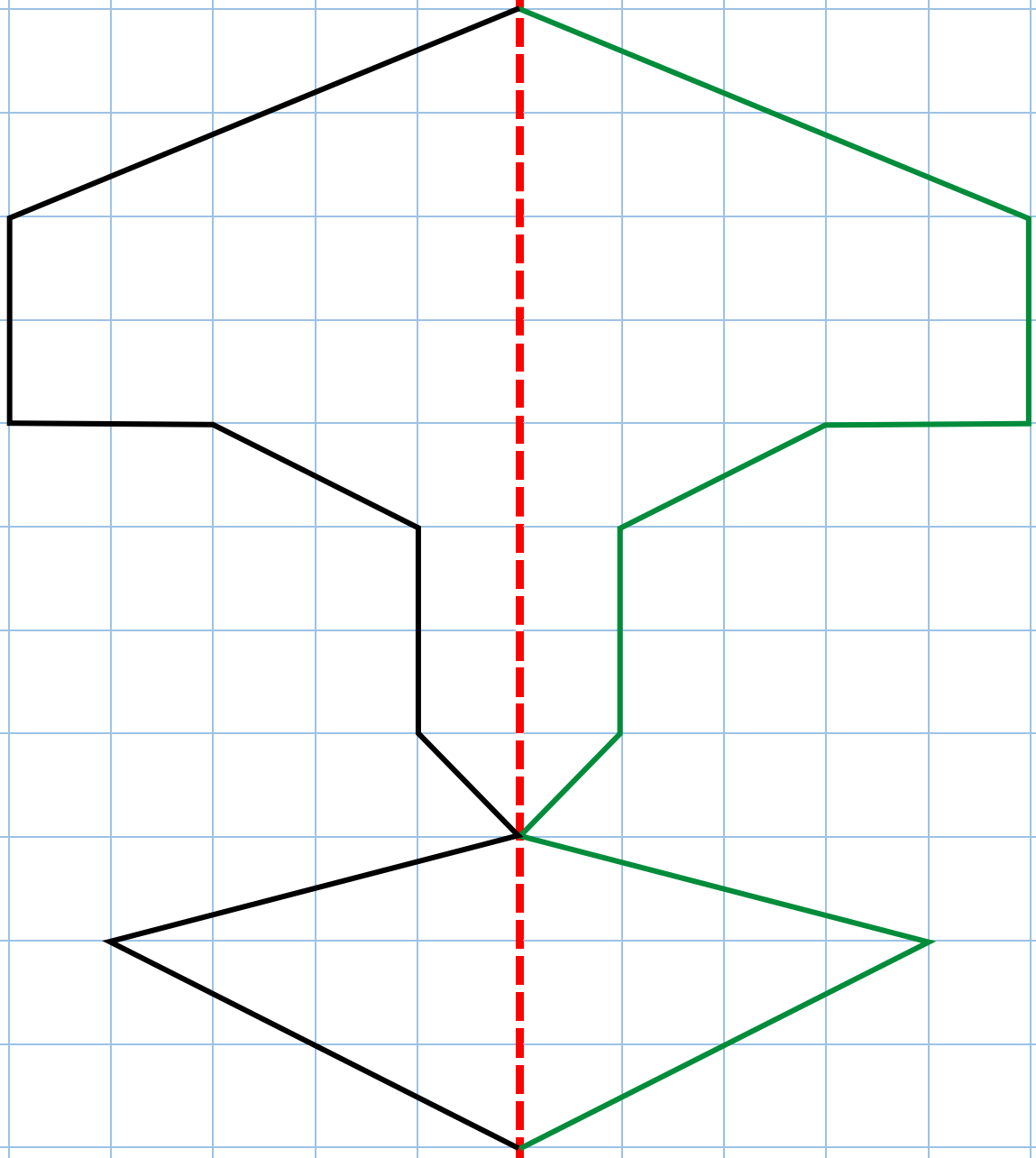
B $3 + -4 = -1$

C $5 + -4 = 1$

D $3 + 5 = 8$

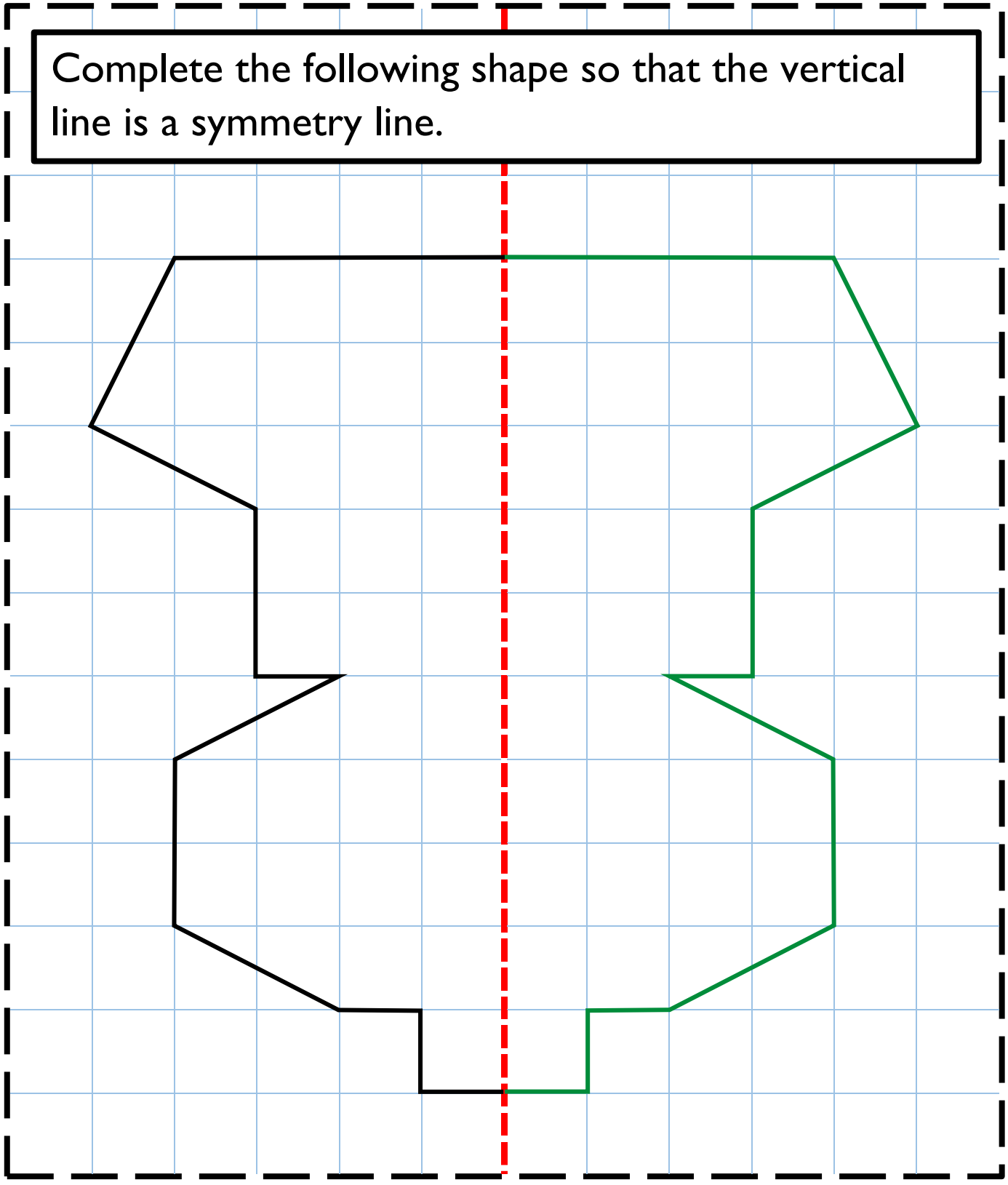
Example 2

Complete the following shape so that the vertical line is a symmetry line.



Exercise 2

Complete the following shape so that the vertical line is a symmetry line.



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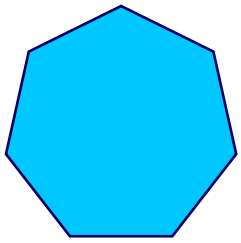
Quiz 3

1) Name this shape.



Regular heptagon

2) How many minutes are there in an hour?

60

3) How many 50p pieces are there in £5?

$2 \times 5 = 10$

4) $167 - ? = 110$

$167 - 110$

$= 57$

5) How much more is half of 30 than double 6?

$30 \div 2 = 15$

$6 \times 2 = 12$

$15 - 12 = 3$

6) $12 + 13 + 14 =$

$12 + 13 + 14 = 39$

7) What is $\frac{1}{4}$ of 24?

$24 \div 4$

$= 6$

8) $11 \times 2 =$

$= 22$

9) $5 - 11 =$

$= -6$

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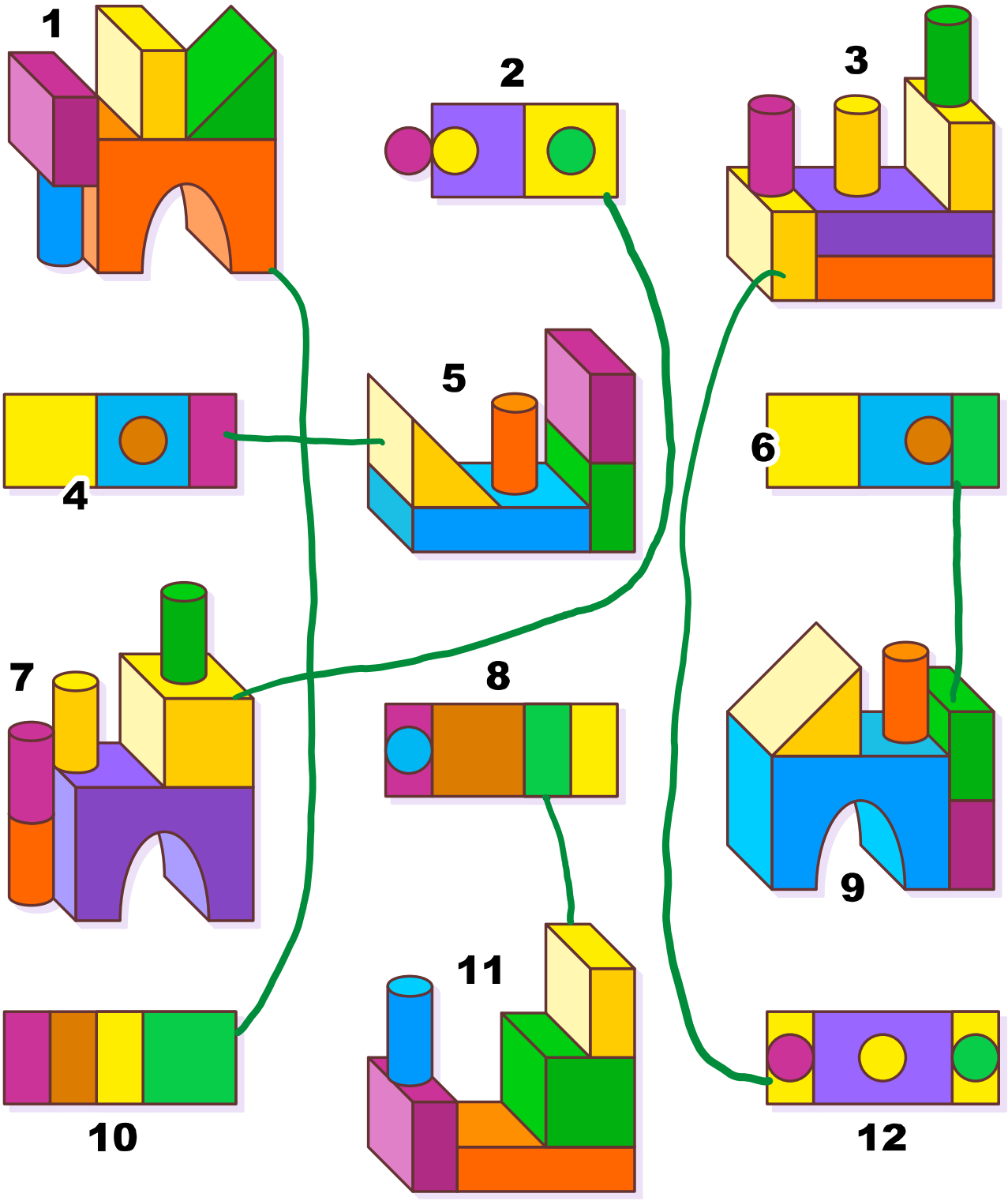
The Top View

Pair the solids with their top views.

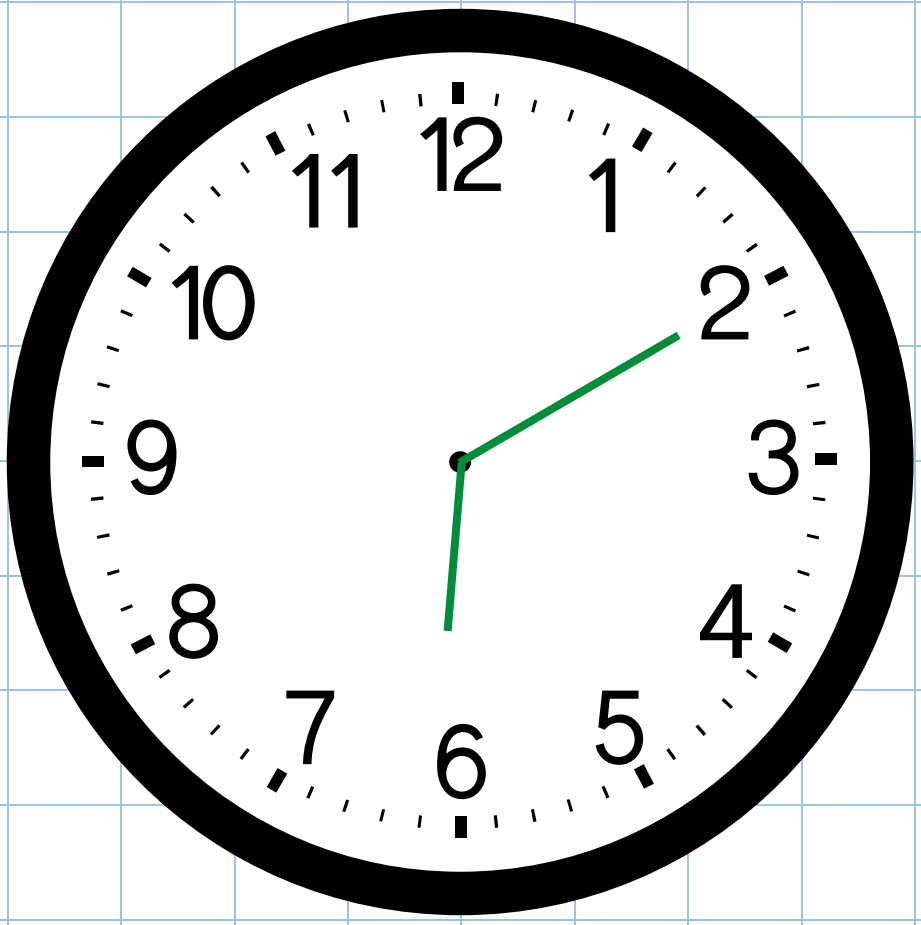


Example 3

Osian sat down to watch his favourite television programme, which started at 17:45. The programme lasted 25 minutes. Draw hands on the following clock to show when the programme finished.

17:45 + 25 minutes = 18:10

In the 12-hour clock, 18:10 = 6:10 pm

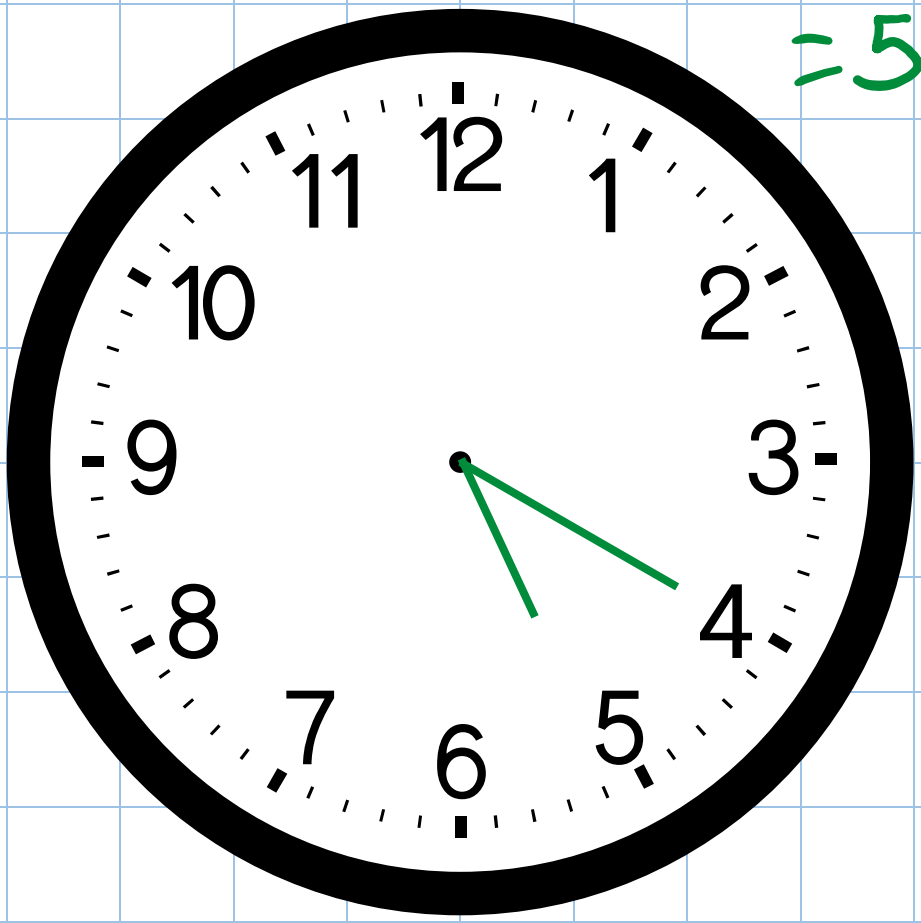


Exercise 3

Olivia sat down to watch her favourite television programme, which started at 16:50. The programme lasted 30 minutes. Draw hands on the following clock to show when the programme finished.

16:50 + 30 minutes = 17:20

= 5:20pm



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Quiz 4

1) Round off 89 correct to the nearest 10.

90

2) What is $\frac{1}{2}$ of £34?

34 ÷ 2
= £17

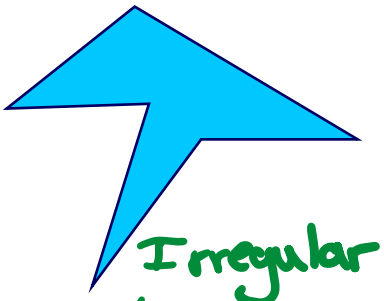
3) 2.6 + 0.6

2.6
+ 0.6
3.2
1

4) If
43 × 12 = 516,
what is
42 × 12?

516 − 12
= 504

5) Name the following shape.



Irregular hexagon

6) How many 10p pieces are in £2?

10 x 2
= 20

7) –5 + 2 = −3

8) 8 × 6 = 48

9) Which month comes after October?

November

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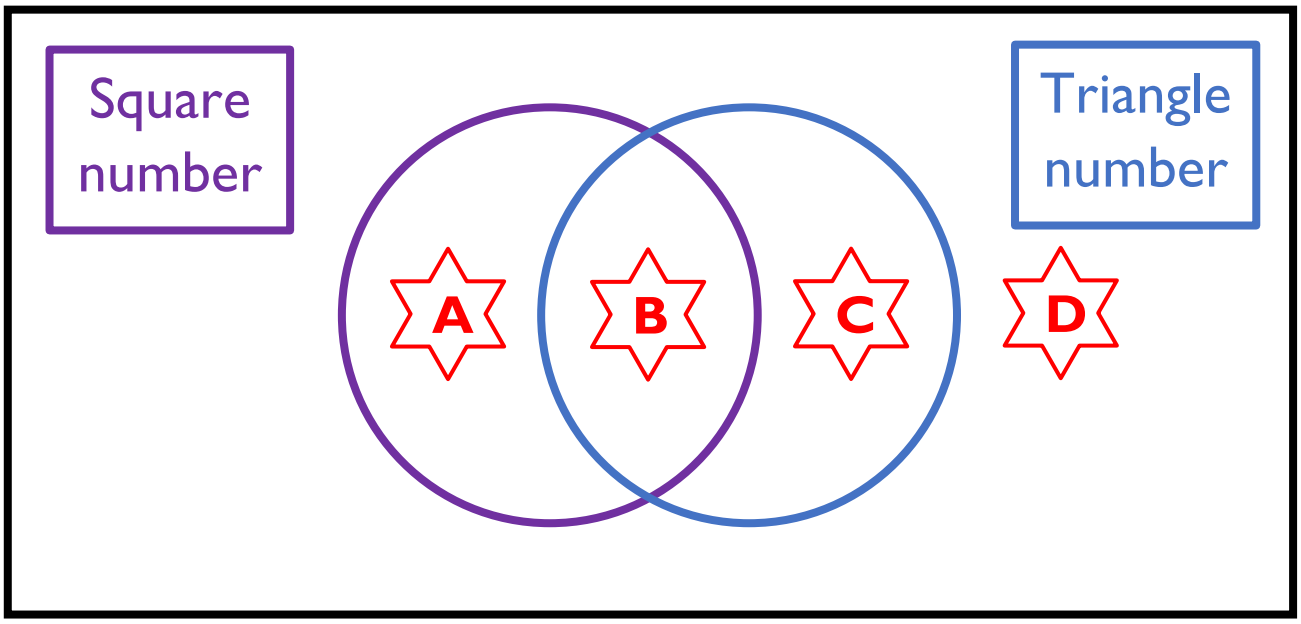
Venn Diagram Challenge 2



Think of a number that could fit into each region.
If you think a region is impossible to fill, explain why!

E.g.

A	4
B	1
C	3
D	2

Example 4

Calculate (a) 43 × 5 (b) 603 × 7 (c) 8,436 × 9

(a)

$$\begin{array}{r} 43 \\ \times\ 5 \\ \hline 215 \\ \hline {\scriptstyle 1} \end{array}$$

(b)

$$\begin{array}{r} 603 \\ \times\ 7 \\ \hline 4221 \\ \hline {\scriptstyle 2} \end{array}$$

(c)

$$\begin{array}{r} 8436 \\ \times\ 9 \\ \hline 75924 \\ \hline {\scriptstyle 3\ 3\ 5} \end{array}$$

Exercise 4

Calculate (a) 32 × 4 (b) 806 × 6 (c) 7,285 × 7

(a)
$$\begin{array}{r} 32 \\ \times\ 4 \\ \hline 128 \end{array}$$

(b)
$$\begin{array}{r} 806 \\ \times\ 6 \\ \hline 4836 \\ \hline 3 \end{array}$$

(c)
$$\begin{array}{r} 7285 \\ \times\ 7 \\ \hline 50995 \\ \hline 153 \end{array}$$

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Quiz 5

$2 \times \boxed{7} = 14$	$\boxed{8} \times 3 = 24$	$4 \times \boxed{3} = 12$	$8 \times \boxed{4} = 32$	$\boxed{5} \times 4 = 20$
$8 \times \boxed{2} = 16$	$9 \times \boxed{3} = 27$	$\boxed{1} \times 5 = 5$	$\boxed{7} \times 8 = 56$	$7 \times \boxed{4} = 28$
$\boxed{4} \times 9 = 36$	$2 \times \boxed{5} = 10$	$\boxed{11} \times 3 = 33$	$6 \times \boxed{5} = 30$	$\boxed{3} \times 7 = 21$
$3 \times \boxed{12} = 36$	$\boxed{6} \times 9 = 54$	$6 \times \boxed{3} = 18$	$\boxed{10} \times 7 = 70$	$1 \times \boxed{17} = 17$
$8 \times \boxed{5} = 40$	$\boxed{4} \times 4 = 16$	$2 \times \boxed{6} = 12$	$5 \times \boxed{7} = 35$	$\boxed{9} \times 9 = 81$

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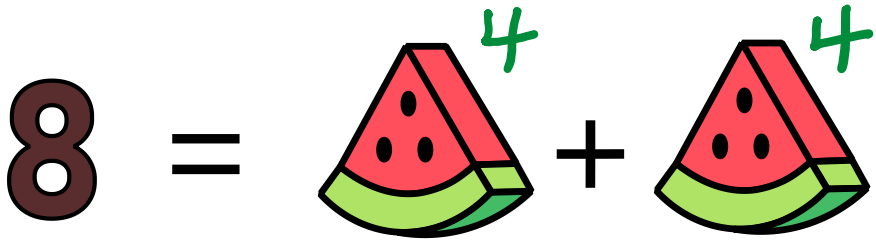
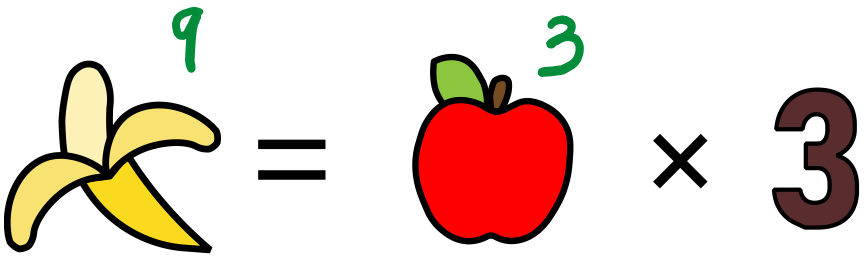
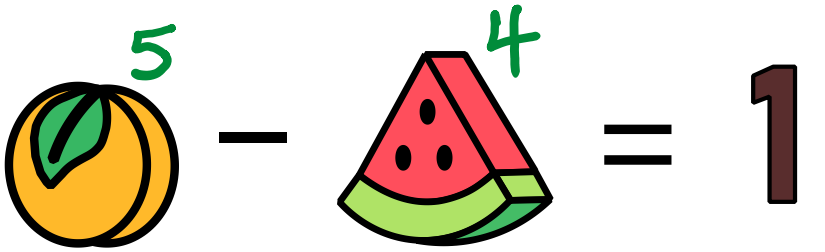
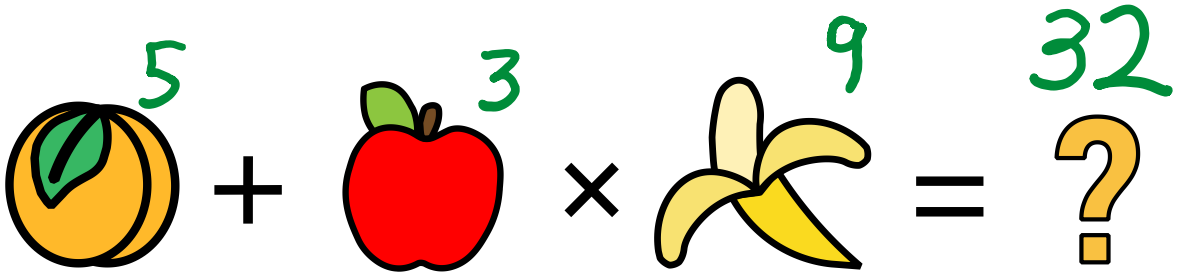
The Fruit Puzzle









Evaluating the Workbook

Notes