

Name: \_\_\_\_\_



# Times Tables

## Practice

### Workbook 1



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example Problem Pair	4–5
A Picture to Colour 1	6
Venn Diagram Challenge 1	7
Quiz 2	8
Quiz 3	9
Interpreting	10
Quiz 4	11
A Picture to Colour 2	12
Quiz 5	13
Venn Diagram Challenge 2	14
Multiplication Tables	15



## Quiz 1



$3 \times 4 =$	$2 \times 5 =$	$6 \times 3 =$	$8 \times 2 =$	$7 \times 4 =$
$7 \times 5 =$	$3 \times 3 =$	$6 \times 4 =$	$3 \times 2 =$	$8 \times 3 =$
$11 \times 3 =$	$5 \times 5 =$	$7 \times 2 =$	$9 \times 4 =$	$0 \times 5 =$
$5 \times 4 =$	$6 \times 2 =$	$9 \times 3 =$	$3 \times 5 =$	$9 \times 2 =$
$6 \times 5 =$	$7 \times 3 =$	$8 \times 4 =$	$1 \times 2 =$	$9 \times 5 =$

\_\_\_\_\_ out of 25



## Example



Calculate the following.

(a)  $27 \times 3$       (b)  $163 \times 4$       (c)  $2,058 \times 5$

$$\begin{array}{r}
 \text{(a)} \quad 27 \\
 \times \quad 3 \\
 \hline
 81 \\
 \hline
 2
 \end{array}$$

$$\begin{array}{r}
 \text{(b)} \quad 163 \\
 \times \quad 4 \\
 \hline
 652 \\
 \hline
 21
 \end{array}$$

$$\begin{array}{r}
 \text{(c)} \quad 2058 \\
 \times \quad 5 \\
 \hline
 10290 \\
 \hline
 24
 \end{array}$$



# Exercise



Calculate the following.  
(a)  $46 \times 3$     (b)  $278 \times 4$     (c)  $5,913 \times 5$

Grid area for calculations

\_\_\_ out of 3



# A Picture to Colour 1



8x4

8x7

8x4

8x3

8x6

8x3

8x6

8x8

8x8

8x6

8x4

8x7

8x7

8x6

8x8

8x2

8x2

8x8

8x6

8x4

8x4

8x3

8x6

8x8

8x2

8x2

8x8

8x6

8x3

8x4

8x4

8x3

8x6

8x8

8x2

8x8

8x6

8x7

8x4

8x4

8x7

8x6

8x8

8x2

8x8

8x6

8x7

8x4

8x2

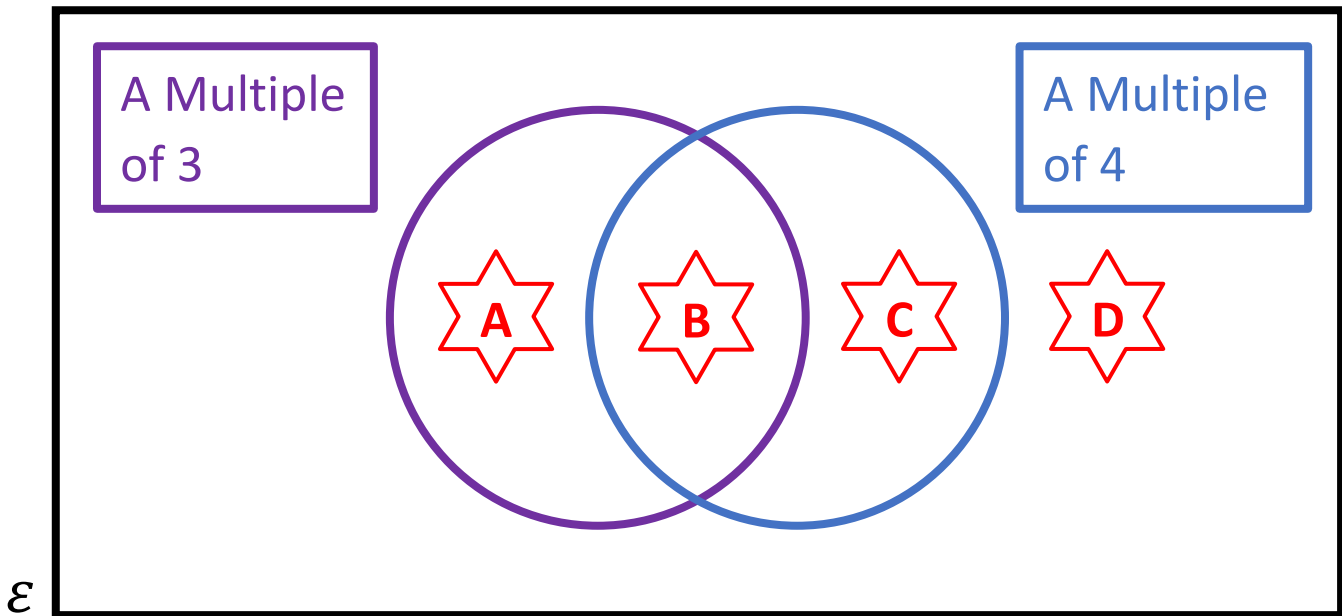
8x4

8x10





16    24    32    40    48    56    64    72    80



Venn Diagram Challenge 1



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

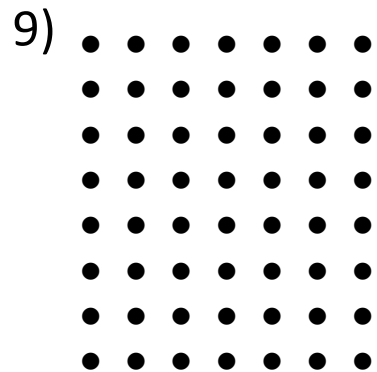
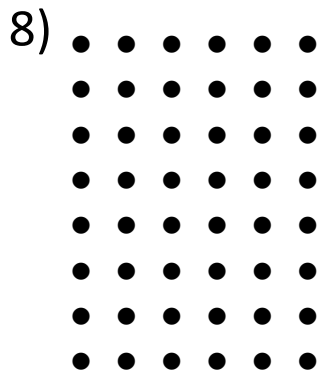
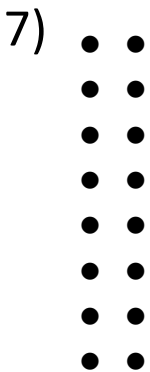
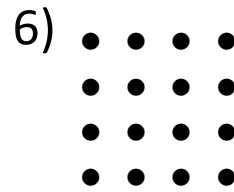
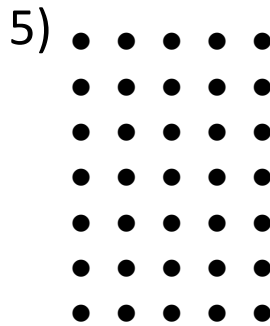
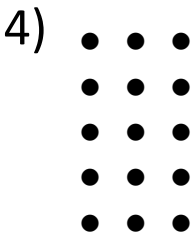
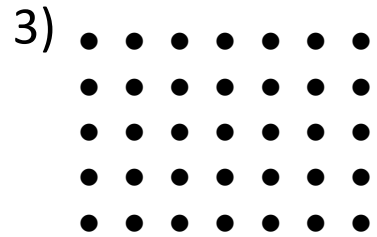
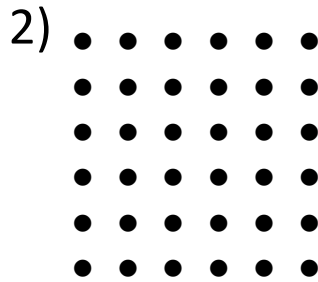
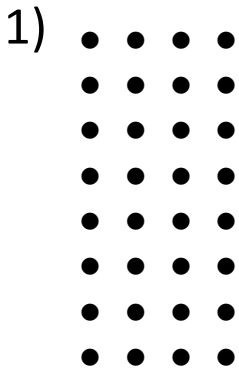
	
	
	
	



# Quiz 2



Which multiplication sum matches the following pictures?



— out of 9



## Quiz 3



$2 \times 6 =$	$6 \times 8 =$	$4 \times 10 =$	$4 \times 7 =$	$6 \times 9 =$
$7 \times 10 =$	$5 \times 7 =$	$5 \times 6 =$	$9 \times 8 =$	$1 \times 9 =$
$3 \times 8 =$	$7 \times 9 =$	$6 \times 7 =$	$9 \times 10 =$	$7 \times 6 =$
$8 \times 9 =$	$7 \times 7 =$	$7 \times 8 =$	$8 \times 6 =$	$3 \times 10 =$
$5 \times 8 =$	$9 \times 6 =$	$9 \times 9 =$	$5 \times 10 =$	$8 \times 7 =$

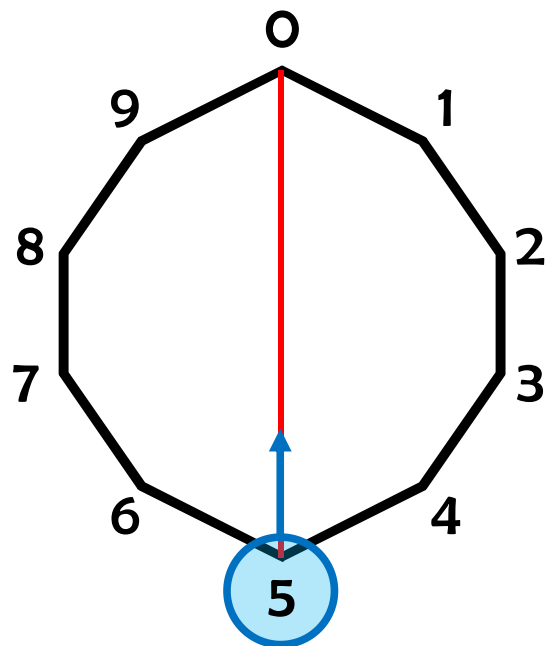
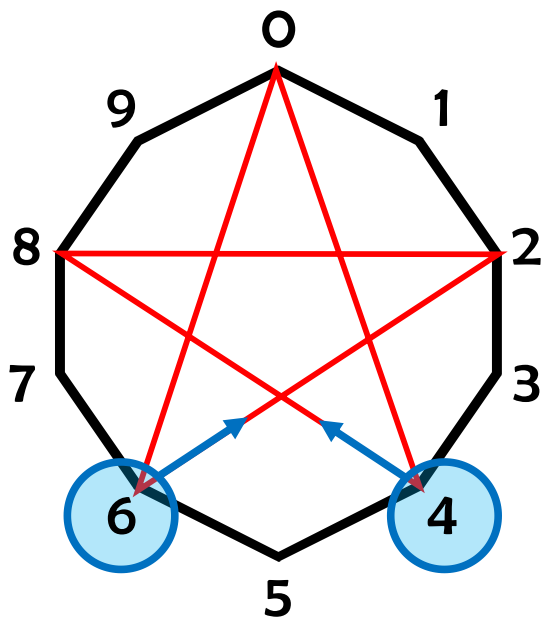
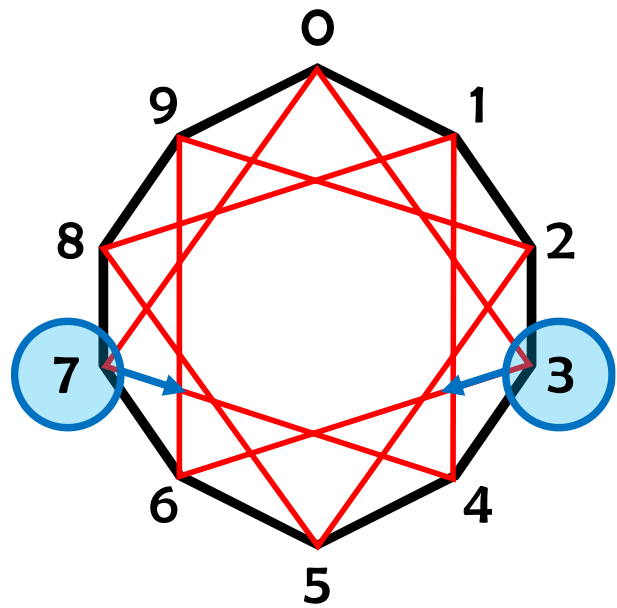
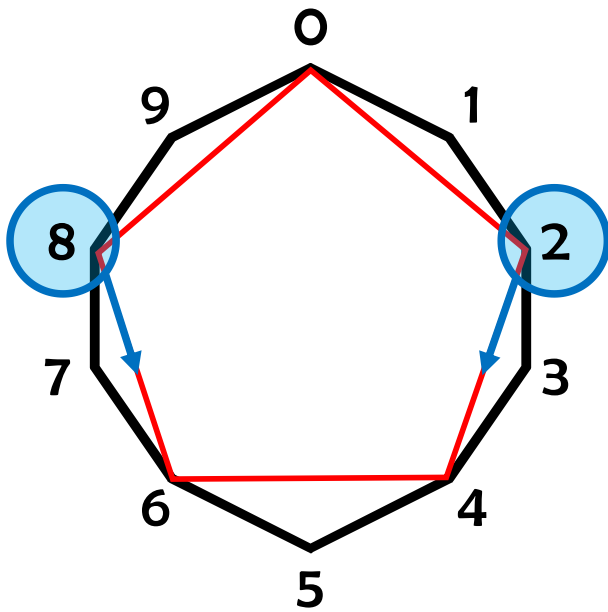
\_\_\_ out of 25



# Interpreting



Explain what the following pictures show.





## Quiz 4



$2 \times \square = 16$	$\square \times 3 = 21$	$4 \times \square = 8$	$8 \times \square = 40$	$\square \times 4 = 24$
$8 \times \square = 32$	$9 \times \square = 54$	$\square \times 5 = 50$	$\square \times 8 = 64$	$7 \times \square = 35$
$\square \times 9 = 63$	$2 \times \square = 12$	$\square \times 3 = 36$	$6 \times \square = 18$	$\square \times 7 = 56$
$3 \times \square = 30$	$\square \times 9 = 45$	$6 \times \square = 42$	$\square \times 7 = 77$	$1 \times \square = 15$
$8 \times \square = 72$	$\square \times 4 = 36$	$2 \times \square = 10$	$5 \times \square = 20$	$\square \times 9 = 27$

\_\_\_\_\_ out of 25



# A Picture to Colour 2



9x6

9x6

8x9

9x10

9x8

10x9

8x9

9x10

9x8

7x9

9x9

9x7

9x9

7x9

9x9

9x7

9x8

8x9

9x5

9x8

5x9

8x9

5x9

8x9

4x9

9x3

9x4

3x9

4x9

9x3

6x9

3x9

4x9

9x6

6x9

9x6

6x9

9x6

6x9

2x9

9x2

2x9

9x2

2x9

9x2

2x9

9x2

9x10

18

27

36

45

54

63

72

81

90



## Quiz 5

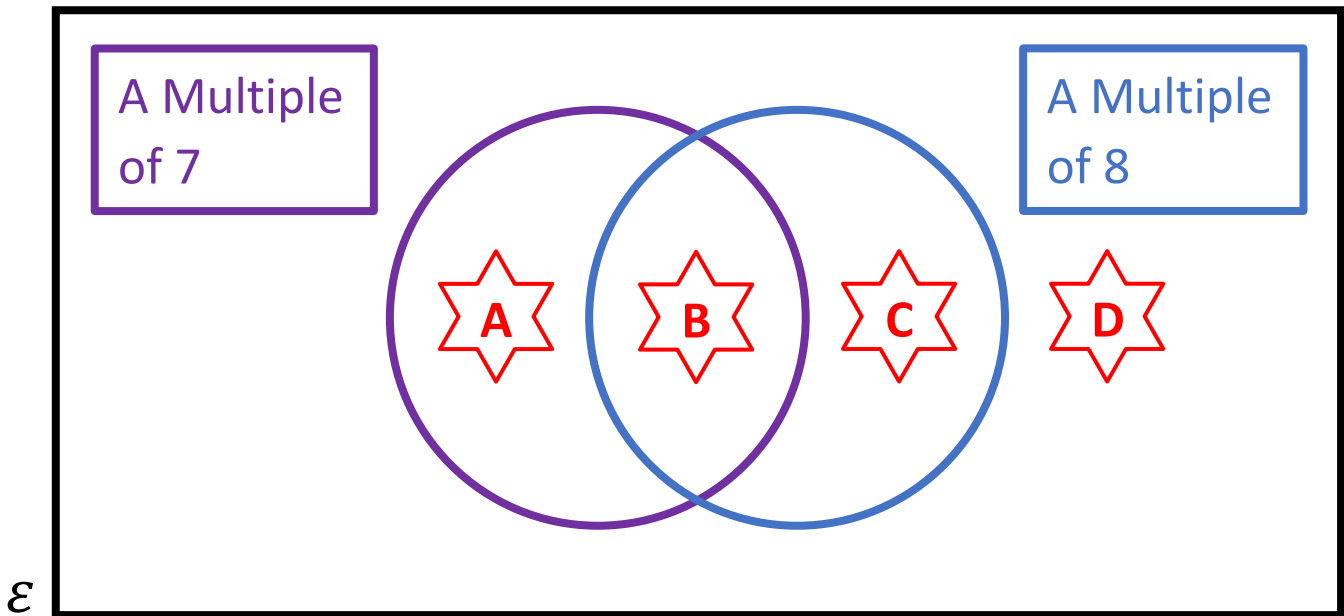


$5 \times 3 =$	$8 \times 4 =$	$9 \times 7 =$	$2 \times 11 =$	$7 \times 10 =$
$4 \times 6 =$	$9 \times 2 =$	$6 \times 5 =$	$6 \times 8 =$	$8 \times 9 =$
$14 \times 1 =$	$4 \times 12 =$	$7 \times 0 =$	$7 \times 6 =$	$11 \times 12 =$
$9 \times 3 =$	$2 \times 3 =$	$11 \times 11 =$	$8 \times 5 =$	$7 \times 9 =$
$6 \times 10 =$	$2 \times 6 =$	$9 \times 12 =$	$7 \times 7 =$	$6 \times 9 =$





\_\_\_\_\_ out of 25



Venn Diagram Challenge 2



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



# Multiplication Tables



×	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

— out of 144

# Evaluating the Workbook



# Notes



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**Introducing**

**Angles**

**Additional Tasks**



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example Problem Pair 2	8–9
Quiz 3	10
Quiz 4	11
Example Problem Pair 3	12–13
Quiz 5	14
Venn Diagram Challenge 2	15
Example Problem Pair 4	16–17
Quiz 6	18
Quiz 7	19



# Quiz 1



1) How much is double 186?

2) Draw a pentagon.

3) Write 23,164 in words.

4) Fill in the boxes.

$$\begin{array}{r}
 3 \square 5 \\
 + \square 8 7 \\
 \hline
 8 6 2
 \end{array}$$

5) Pair the following cards.

$8 \times 8$

$6 \times 7$

$9 \times 5$

$16 \times 4$

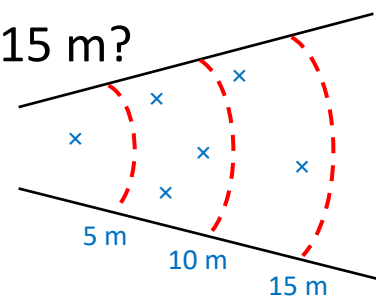
$21 \times 2$

$15 \times 3$

$52 \times 1$

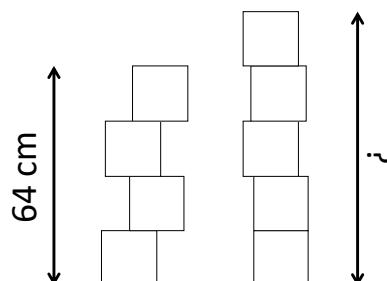
$13 \times 4$

6) How many throws were between 10 m and 15 m?



7) Draw a horizontal line.

8)



9) Why isn't 33 a prime number?



## Example 1



Calculate  $7^3 + 8^2$ .

$$7^3 = 7 \times 7 \times 7$$

$$= 49 \times 7$$

$$= 343$$

$$\begin{array}{r} 49 \\ \times 7 \\ \hline 343 \end{array}$$

$$8^2 = 8 \times 8$$

$$= 64$$

$$7^3 + 8^2 =$$

$$\begin{array}{r} 343 \\ + 64 \\ \hline 407 \\ \hline \end{array}$$

**Exercise 1**

Calculate  $6^3 - 7^2$ .

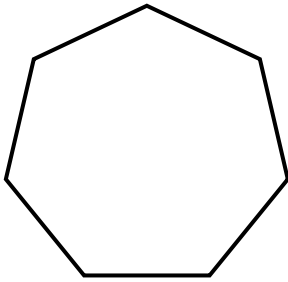

\_\_\_ out of 3



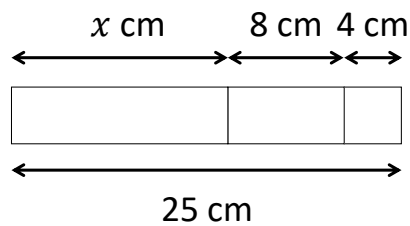
## Quiz 2



1) Name this shape.



2) Find the value of  $x$ .



3) How many seconds are there in an hour?

4)  $123 - 46$

5) Draw a vertical line.

6)  $9^2$

7)  $180 - 92$

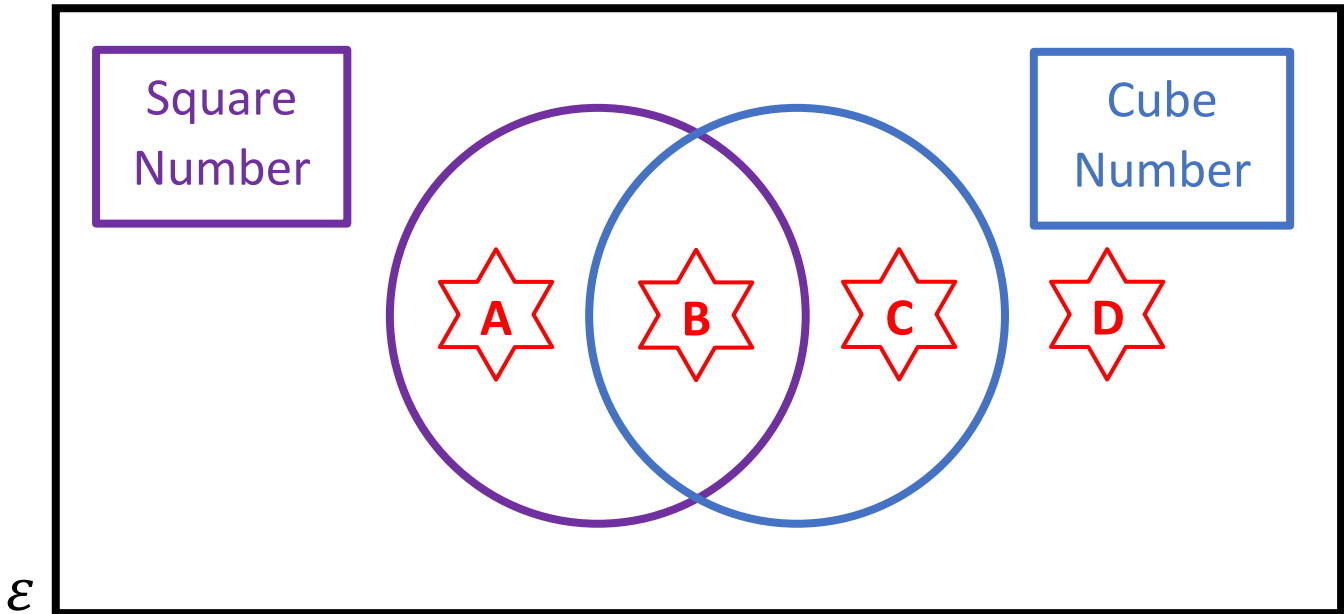
8) How much is double 127?

9)  $15 \times 4$

\_\_\_\_\_ out of 9



Venn Diagram Challenge 1



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









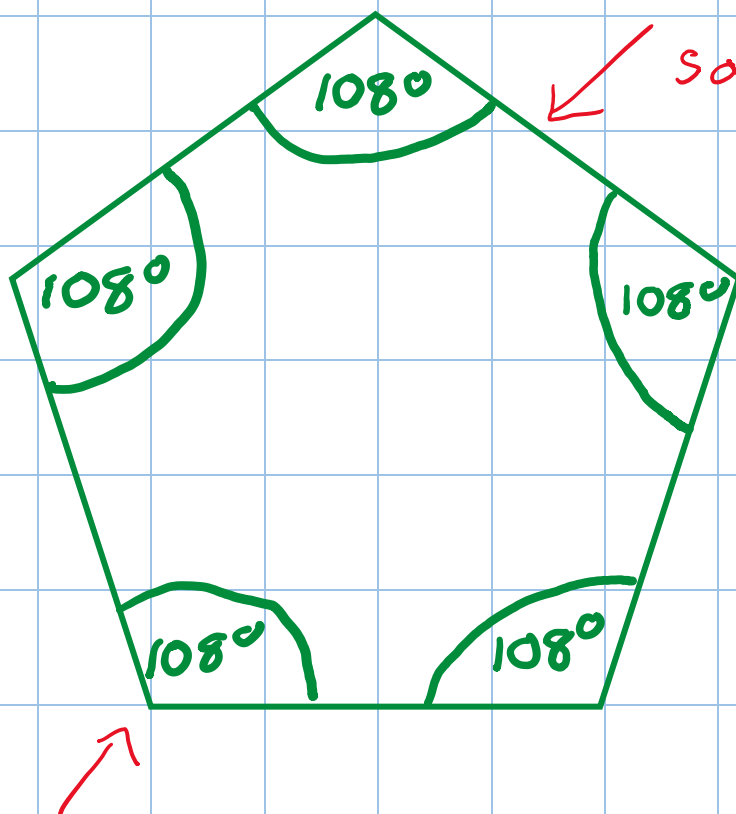


## Example 2



The internal angles in a regular pentagon are all  $108^\circ$ .  
Draw a regular pentagon on the squared paper below.

Draw the sides using a ruler.  
Make sure that each side has the same length.



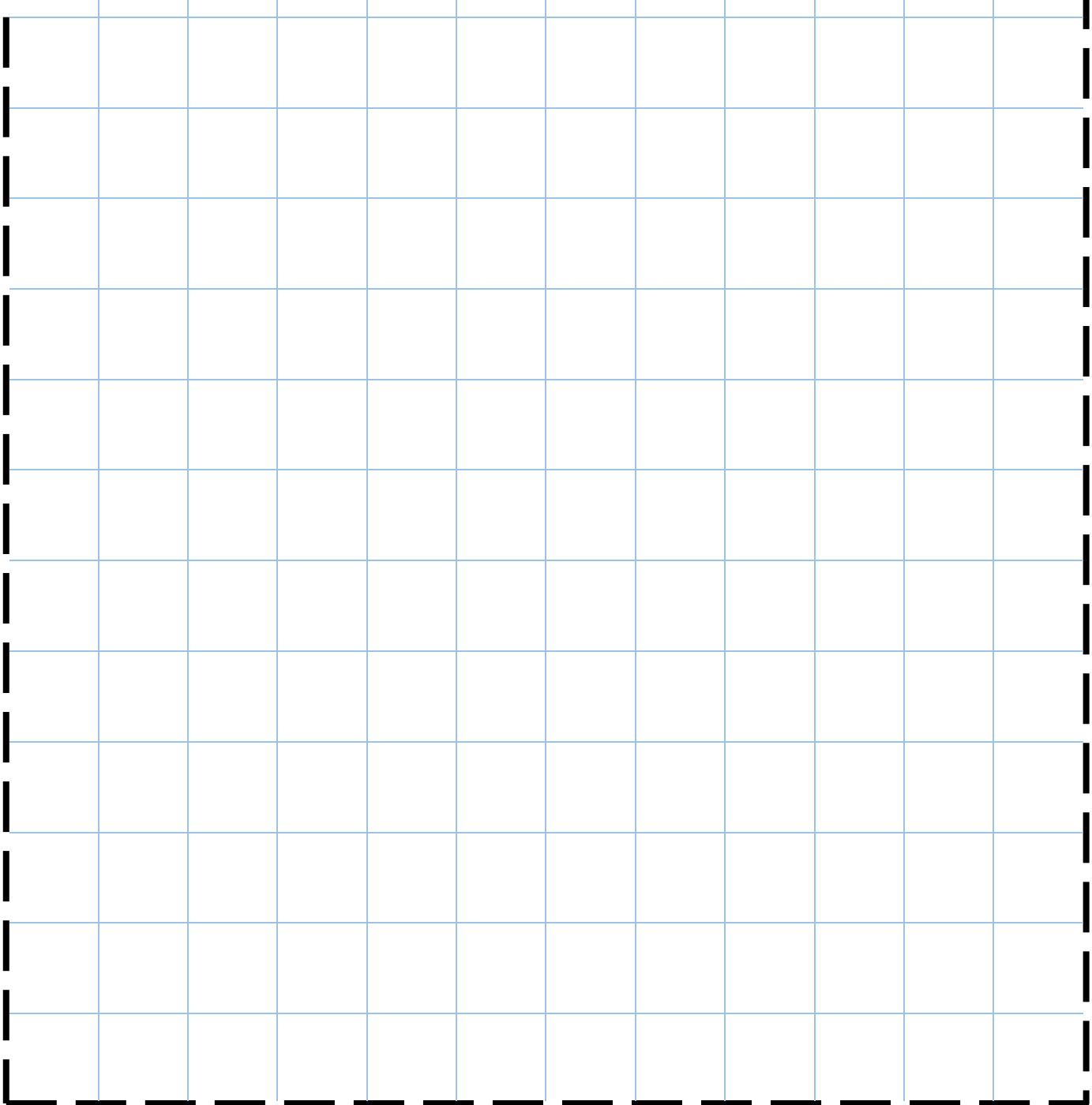
Measure each angle using a protractor.



## Exercise 2



The internal angles in a regular hexagon are all  $120^\circ$ .  
Draw a regular hexagon on the squared paper below.



\_\_\_ out of 2



# Quiz 3



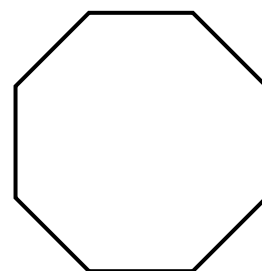
1) Which of the following numbers is a prime number?

4    7    21    25

2) Place 1, 2 and 3 in the boxes to make the calculation true.

$$\boxed{\phantom{0}}\boxed{\phantom{0}} \times 4 = 5\boxed{\phantom{0}}$$

3) Name this shape.

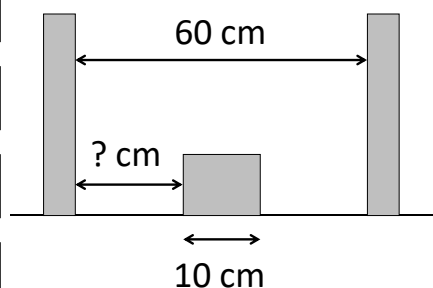


4)  $32 \div 4$

5)  $142 - 84$

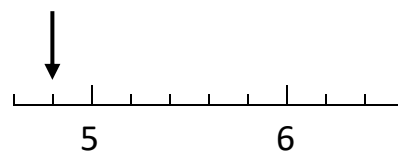
6) Jo has 200 50p coins. How much money does Jo have, in pounds?

7)



8)  $259 - ? = 210$

9) Which number does the arrow point at?



\_\_\_\_\_ out of 9



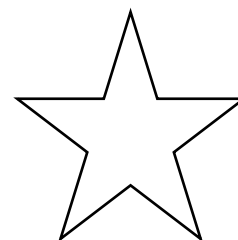
# Quiz 4



1)  $2^3$

2) What type of angle is less than  $90^\circ$ ?

3) Add symmetry lines to the following shape.

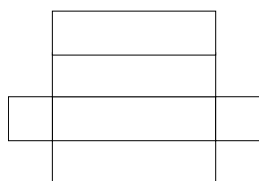


4)  $72 \div 9$

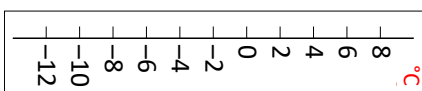
5) Write 16:48 in the 12-hour clock.

6) Draw a pair of perpendicular lines.

7) Which 3D shape does the following net fold to make?



8) With an arrow, show  $-7^\circ\text{C}$  on the thermometer below.



9) How much more is half of 316 compared to double 74?

\_\_\_\_\_ out of 9

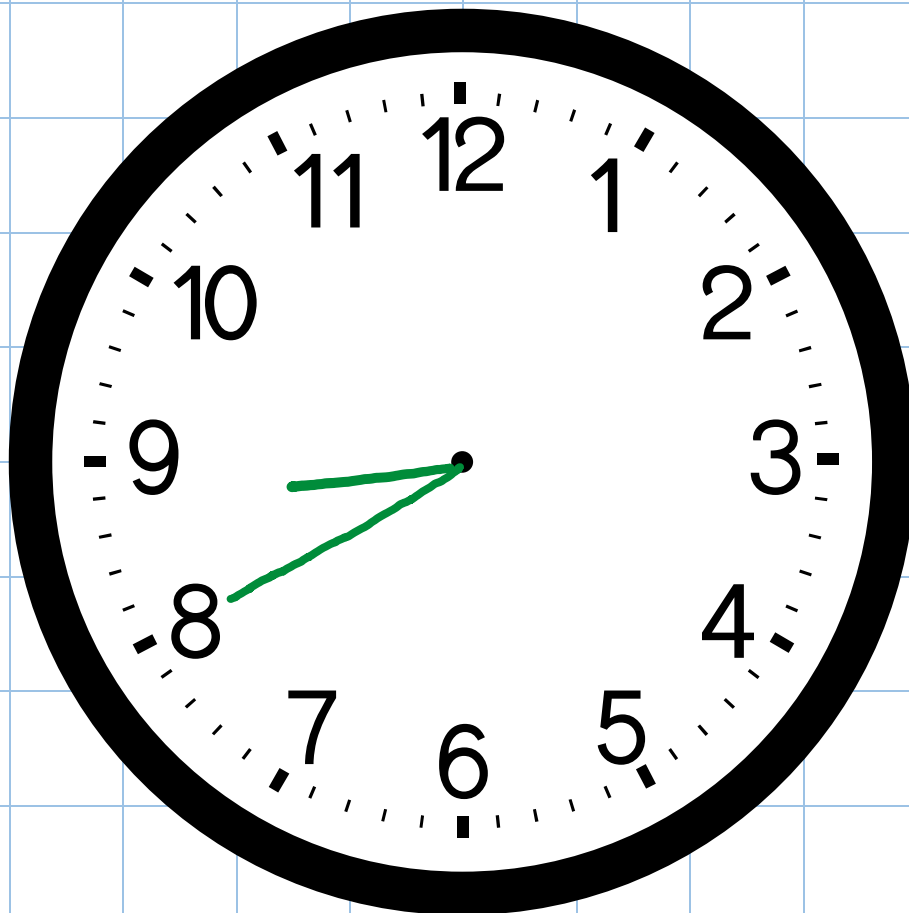


## Example 3



Gwilym sat down to watch his favourite TV programme, which started at 19:50. The programme lasted 50 minutes. Draw hands on the following clock to show when the programme finished.

$19:50 + 50 \text{ minutes} = 20:40.$   
In the 12 hour clock,  $20:40 = 8:40 \text{ pm}$

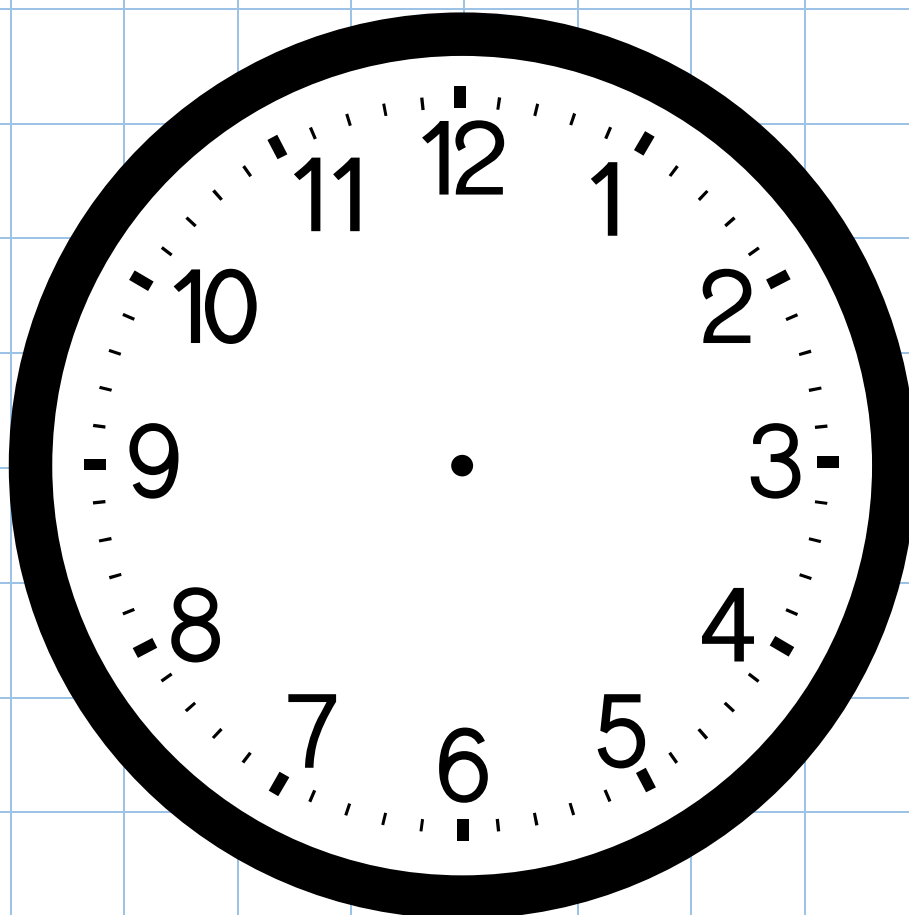




### Exercise 3



Ffion sat down to watch her favourite TV programme, which started at 20:30. The programme lasted 75 minutes. Draw hands on the following clock to show when the programme finished.



\_\_\_ out of 2



## Quiz 5

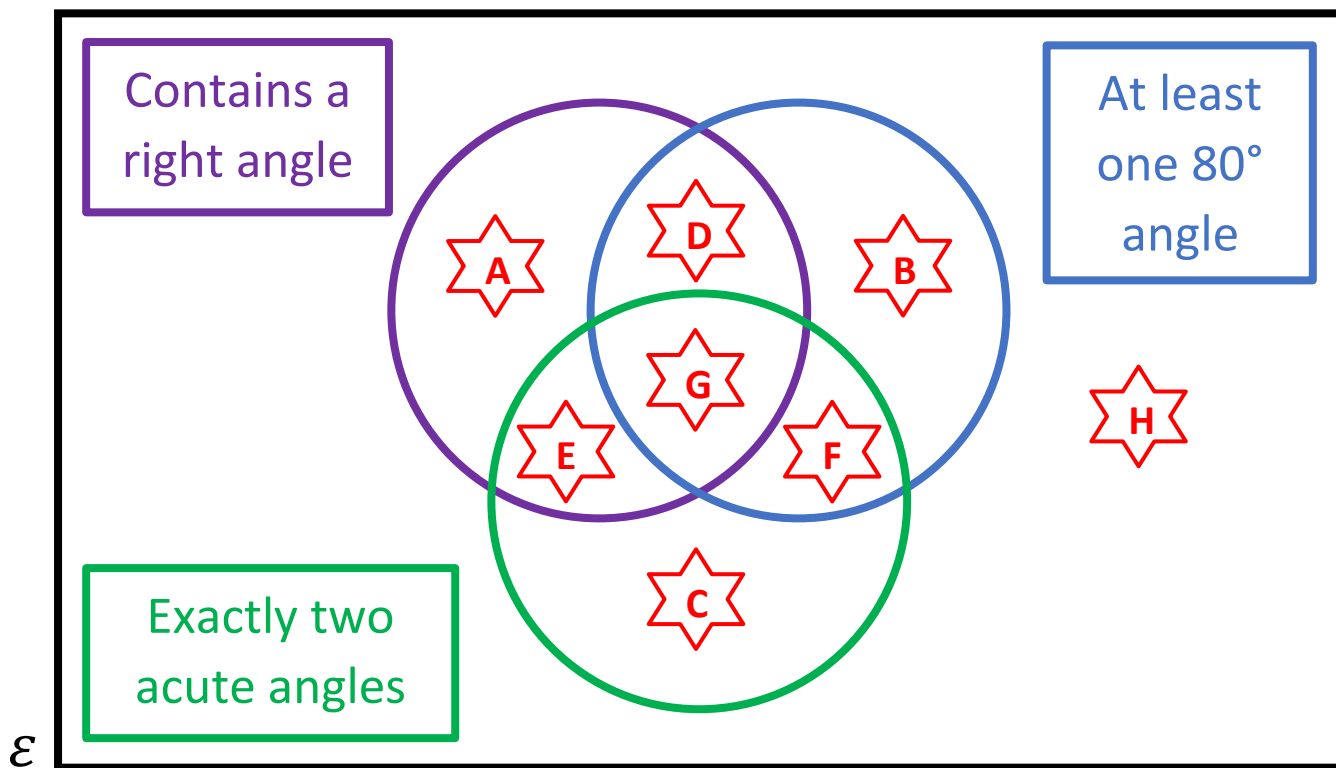


<p>1) Draw an angle of <math>75^\circ</math> on the following line.</p> <p style="text-align: center;">_____</p>	<p>2) <math>4^3</math></p>	<p>3) Alys thinks that 6 is prime. Explain why she is incorrect.</p>
<p>4) <math>360 - 216</math></p>	<p>5) <math>67 + 93</math></p>	<p>6) A bus holds 32 passengers. How many buses are required to transport 150 people?</p>
<p>7) <math>12 \times 7</math></p>	<p>8) Which triangles are right-angled triangles?</p> <div style="text-align: center;"> </div>	<p>9) What type of angle is the angle <math>137^\circ</math>?</p>

\_\_\_\_\_ out of 9



# Venn Diagram Challenge 2



List the angles for a triangle that fits into each of the above regions. If you think that a region is impossible to fill, explain why!



















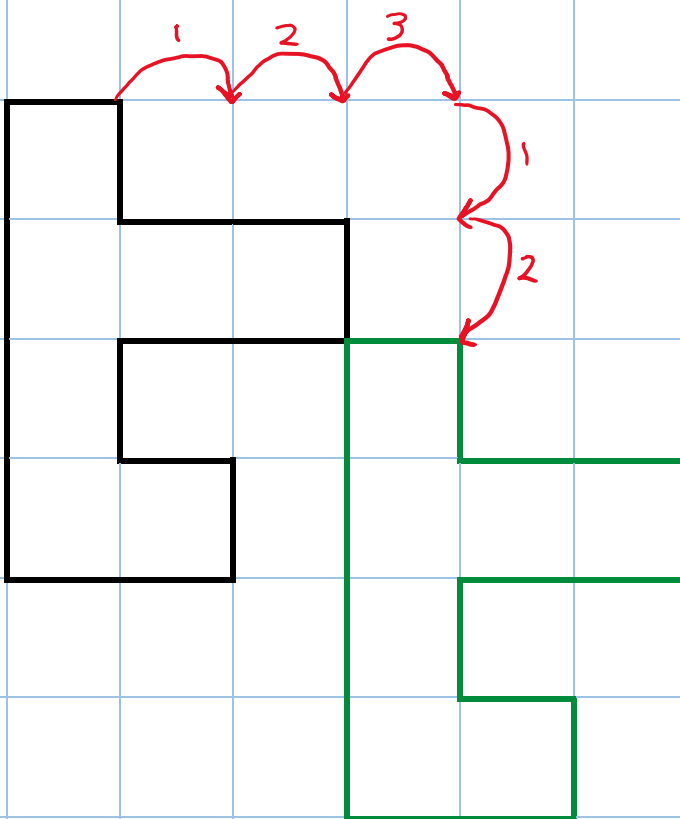
## Example 4



Translate the shape below using the column vector

$$\begin{pmatrix} 3 \\ -2 \end{pmatrix}.$$

$\begin{pmatrix} 3 \\ -2 \end{pmatrix}$  means moving the shape 3 units to the right and 2 units down.



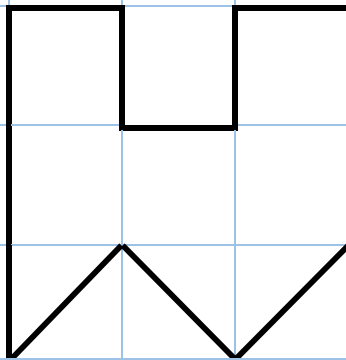


## Exercise 4



Translate the shape below using the column vector

$$\begin{pmatrix} -2 \\ 4 \end{pmatrix}.$$



— out of 2



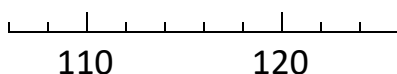
# Quiz 6



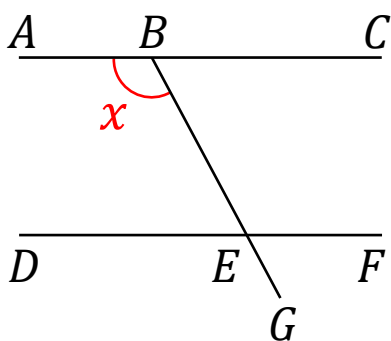
1)  $10^2$

2) Add an arrow to show 117.

3)  $4^3 + 3^2$



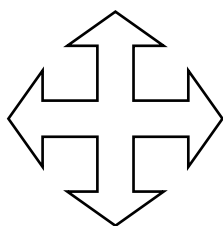
4) With 3 letters name the angle  $x$ .



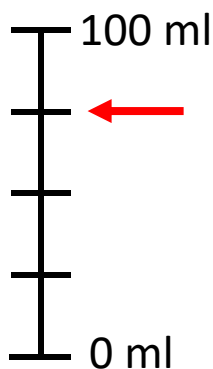
5) What type of angle is the angle  $184^\circ$ ?

6)  $7 \times ? = 56$

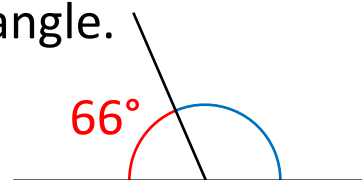
7) What is the order of symmetry of this shape?



8) The arrow points at \_\_\_\_\_ ml.



9) Calculate the size of the missing angle.



\_\_\_\_\_ out of 9

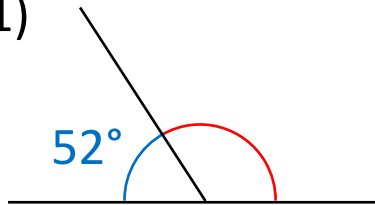


# Quiz 7

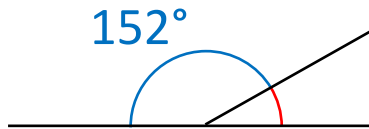


Calculate the size of the **red** angle.

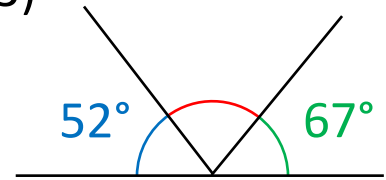
1)



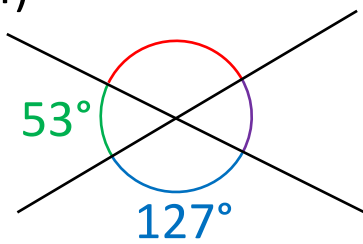
2)



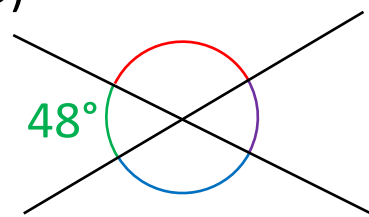
3)



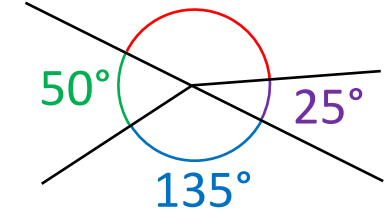
4)



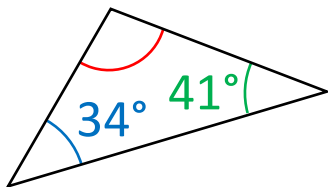
5)



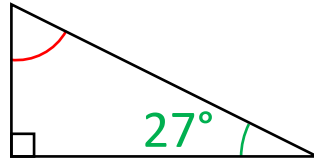
6)



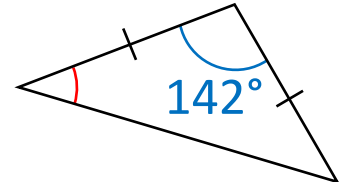
7)



8)



9)



— out of 9

# Evaluating the Workbook



# Notes



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# Data Handling

# and Statistics

# Additional Tasks



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example Problem Pair 2	8–9
Quiz 3	10
Time on the clock	11
Example Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example Problem Pair 4	16–17
Quiz 5	18
Ages	19



## Quiz 1

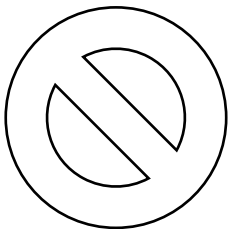


1)  $25 + 27 + 29$

2)  $63 \div 7$

3) What type of angle is the angle  $94^\circ$ ?

4) Add symmetry lines to the shape below.



5)  $1.5 + 3.5$

6)  $36 \div 3$

7) What is the total angles in any triangle?

8) How would the column vector  $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$  move a shape?

9) Write 3:24pm in the 24-hour clock.

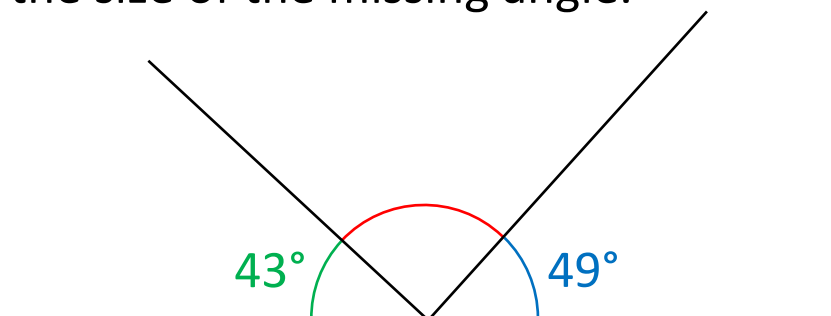
— out of 9



## Example 1



Calculate the size of the missing angle.



$$\begin{array}{r} 43 \\ + 49 \\ \hline 92 \\ \hline 1 \end{array}$$

Add the angles  
we already know

$$\begin{array}{r} 180 \\ - 92 \\ \hline 88 \\ \hline \end{array}$$

Subtract from  $180^\circ$ , as  
angles on a straight line  
sum to  $180^\circ$

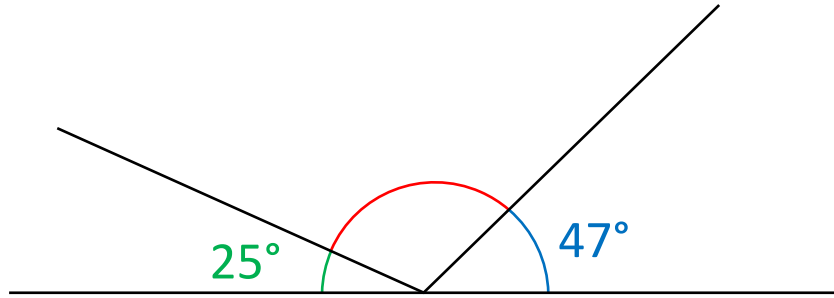
Missing Angle = 88 $^\circ$



# Exercise 1



Calculate the size of the missing angle.



Grid area for working out the solution.

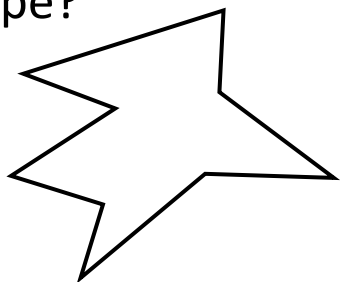
— out of 3



# Quiz 2

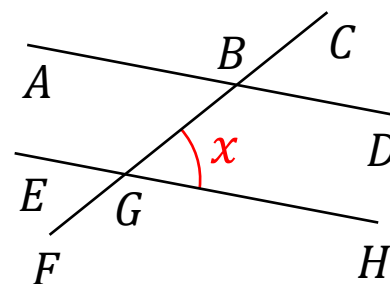


1) What is the name of this shape?



2)  $34 - 16$

3) With 3 letters name the angle  $x$ .



4) Is the number 42,216 a multiple of 3?

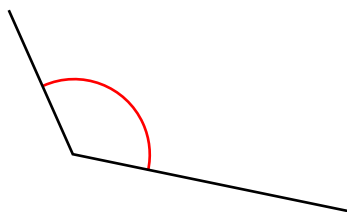
5) Write the time 00:03 in the 12-hour clock.

6) How many days are there in September?

7)  $3.2 + 1.9$

8) Use a protractor to measure the angle below.

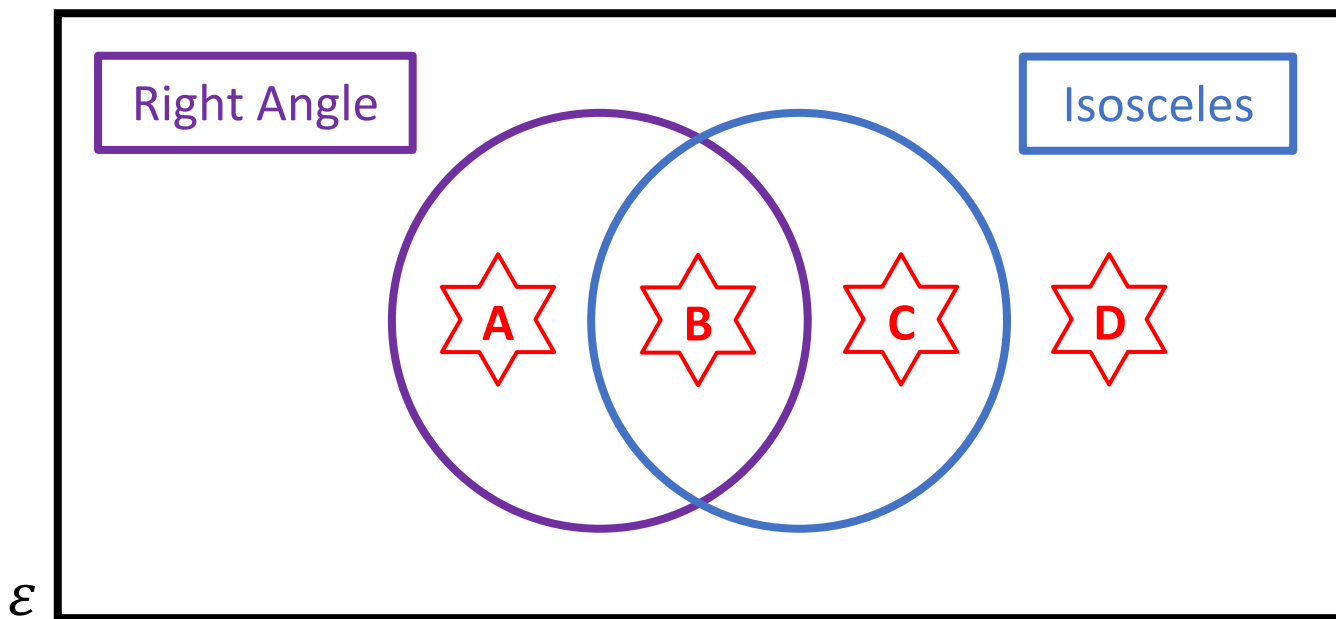
9)  $360^\circ \div 10$



— out of 9



Venn Diagram Challenge 1



Draw a triangle that could fit into each region, remembering to show the size of the angles. If you think a region is impossible to fill, explain why!

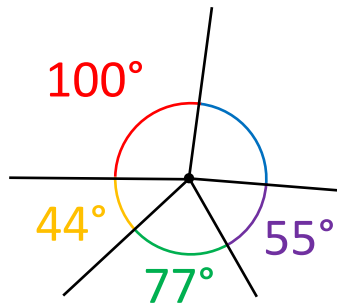




## Example 2



Calculate the size of the missing angle.



		1	0	0			2	15	
							<del>3</del>	<del>6</del>	0
+		4	4				-	2	7
+		7	7					8	4
+		5	5						
		<u>2</u>	<u>7</u>	<u>6</u>					
		↑					Missing Angle = <u>84</u> °		

Add the angles we already know

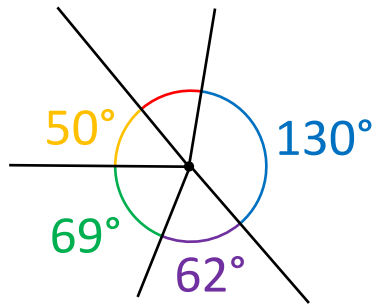
Subtract from 360°, as angles around a point sum to 360°



## Exercise 2



Calculate the size of the missing angle.

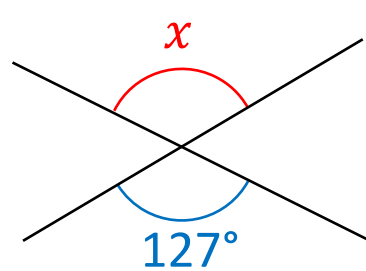
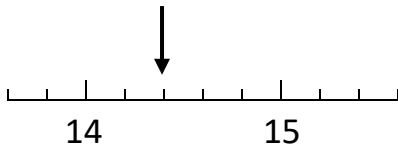


— out of 3



# Quiz 3



<p>1) How many edges does a heptagon have?</p>	<p>2) What time is 43 minutes after 2:38pm?</p>	<p>3) <math>360^\circ \div 20</math></p>
<p>4) What are the size of the angles in any equilateral triangle?</p>	<p>5) The mean of 5, 1, 4, 7, 3.</p>	<p>6) Calculate the size of the angle <math>x</math>.</p> 
<p>7) <math>? - 15 = 21</math></p>	<p>8) <math>5^2</math></p>	<p>9) At which number is the arrow pointing towards?</p> 

\_\_\_ out of 9



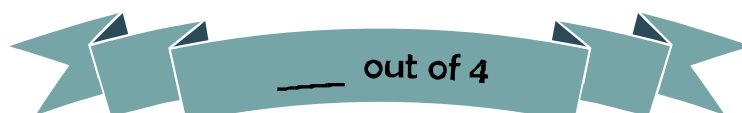
1) The clock shows a time at night. Write down the time using the 24-hour clock.

2) Is the angle between the hands of the clock (a) an acute angle; (b) a right angle; (c) an obtuse angle?



3) An aeroplane is to land at 11:52pm. In how many minutes is this?

4) The hour hand moves around the clock twice a day. How many times does the minute hand go around the clock each week?

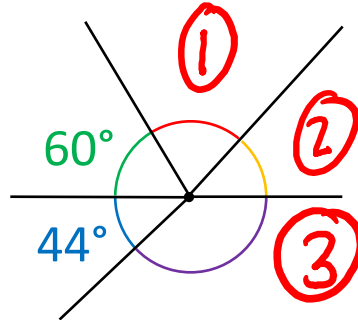




# Example 3



Calculate the size of the missing angles.



$$\begin{array}{r} \textcircled{1} \quad 60 \\ + \quad 44 \\ \hline 104 \end{array} \qquad \begin{array}{r} 180 \\ - \quad 104 \\ \hline 76 \end{array}$$

Angles  $\textcircled{1}$ , blue and green lie on a straight line

Angle  $\textcircled{1} = \underline{\underline{76^\circ}}$

Angle  $\textcircled{2} = \underline{\underline{44^\circ}}$  Angles  $\textcircled{2}$  and blue are vertically opposite, so are equal

$\textcircled{3} \quad 180$  Angle  $\textcircled{3} = \underline{\underline{136^\circ}}$

$- \quad 44$  Angles  $\textcircled{3}$  and blue lie on a straight line.

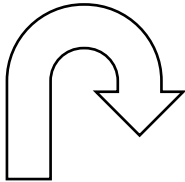
$$\hline 136$$





Quiz 4

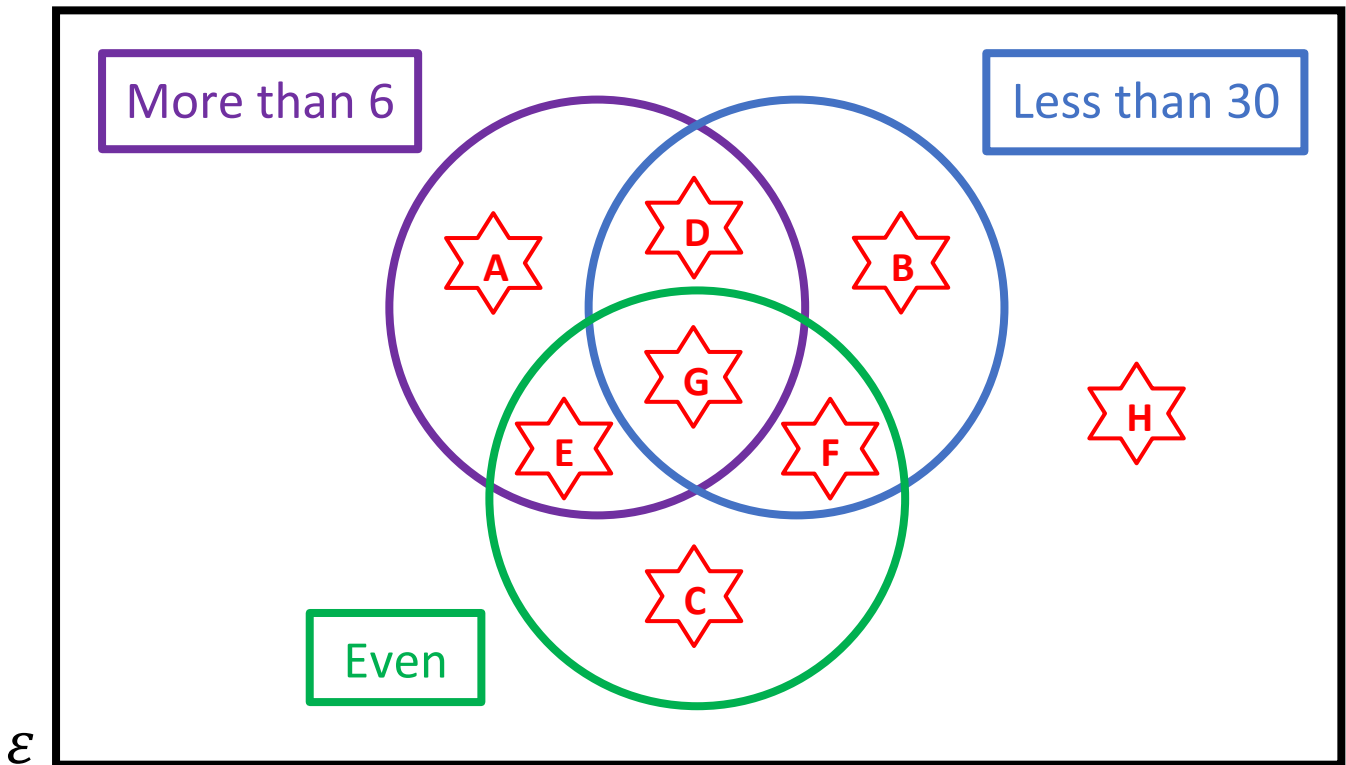


<p>1) What type of angle is the angle <math>45^\circ</math>?</p>	<p>2) What is the rotational symmetry of the following shape?</p> 	<p>3) <math>3^3</math></p>
<p>4) If <math>25 \times 40 = 1000</math> what is <math>26 \times 40</math>?</p>	<p>5) Circle each multiple of 5.</p> <p>53   205   501</p> <p>2630   5056   825</p>	<p>6) A square number and a multiple of 11 total 38. What are the two numbers?</p> <p><input type="text"/> + <input type="text"/> = 38</p> <p>Square number   Multiple of 11</p>
<p>7) Elin spends £20. She spends a <math>\frac{1}{4}</math> of the money on a toy. How much money does Elin have left?</p>	<p>8) <math>645 - 389</math></p>	<p>9) The total of the angles around any point is _____<math>^\circ</math>.</p>

\_\_\_\_\_ out of 9



# Venn Diagram Challenge 2



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

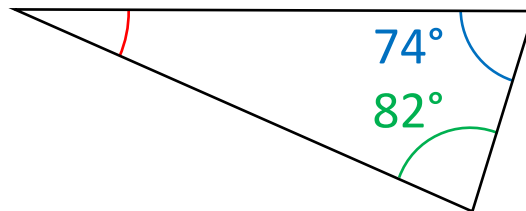
★ A		★ E	
★ B		★ F	
★ C		★ G	
★ D		★ H	



## Example 4



Calculate the size of the red angle.



$$\begin{array}{r} 82 \\ + 74 \\ \hline 156 \end{array}$$

Add the angles we already know

$$\begin{array}{r} 180 \\ - 156 \\ \hline 24 \end{array}$$

Subtract from  $180^\circ$  as the total of the angles in a triangle is  $180^\circ$

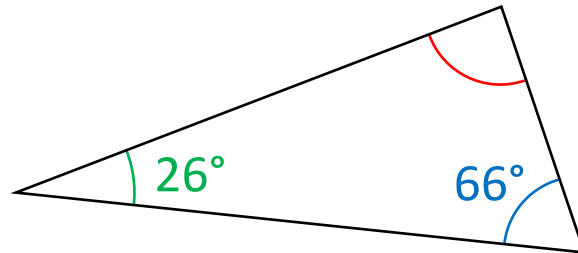
Missing Angle =  $24^\circ$



## Exercise 4



Calculate the size of the red angle.

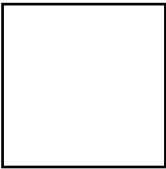


— out of 3

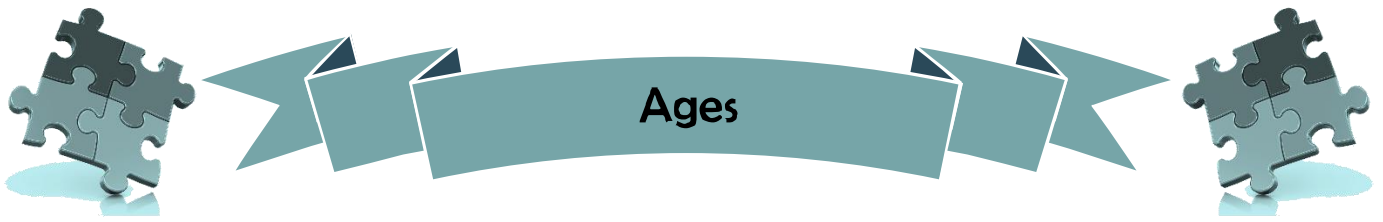


## Quiz 5



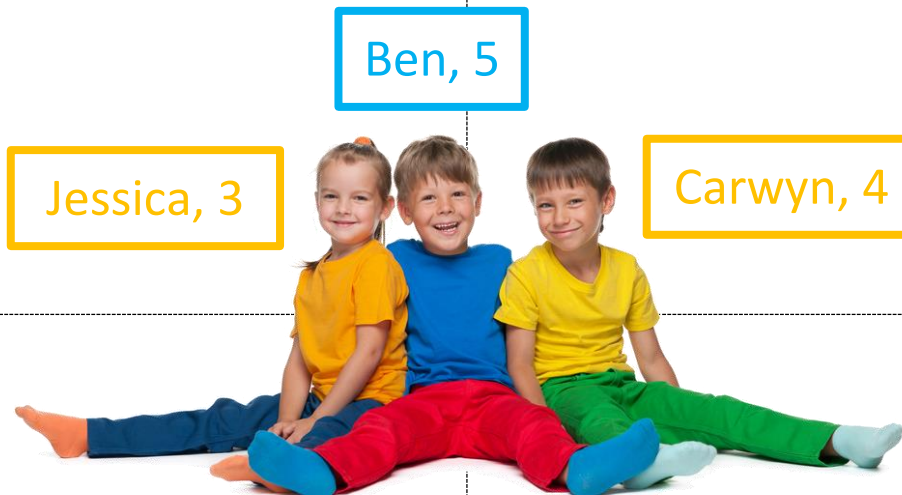
1) The mean of 6, 2, 4, 3, 8, 1, 5, 3.	2) The range of 6, 2, 4, 3, 8, 1, 5, 3.	3) Is "the name of your doctor" qualitative data or quantitative data?
4) $6^2$	5) Is 56 a multiple of 7?	6) What type of angle is the angle $185^\circ$ ?
7) How many symmetry lines does a square have? 	8) How many days are in July?	9) Was 1368 a leap year?

— out of 9



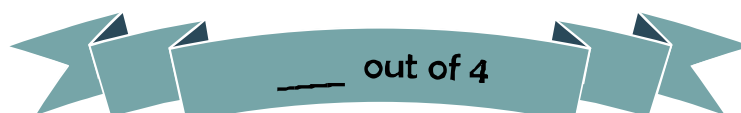
1) What is the mean age of these children?

2) The age of Ben's grandma is the product of the age of the children. How old is Ben's grandma?



3) Another child arrives and the mean is now 5. What is the age of the fourth child?

4) What will be the mean age of the three children five years from today?



# Evaluating the Workbook



# Notes



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**Introducing**

**Percentages**

**Additional Tasks**



# Contents

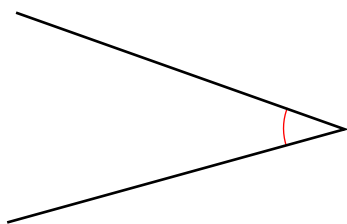
<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge	7
Example Problem Pair 2	8–9
Quiz 3	10
Translating the Triangle	11
Example Problem Pair 3	12–13
Quiz 4	14
Quiz 5	15
Example Problem Pair 4	16–17
Quiz 6	18
Hari's Calculators	19



## Quiz 1



1) Measure the angle below.



2) Write down the first 5 square numbers.

3) Draw a pair of parallel lines.

4) Amy buys a cake for £1.35 and pays using a £5 note. How much change does Amy receive?

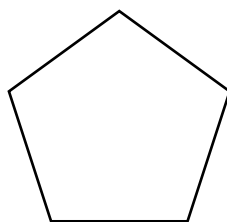
5) What is the range of the following numbers?

5, 7, 10, 3, 5

6)  $7^2 - 2^3$

7)  $7584 + 737$

8) Add symmetry lines to the shape below.



9) How many minutes are in 3 hours?

— out of 9

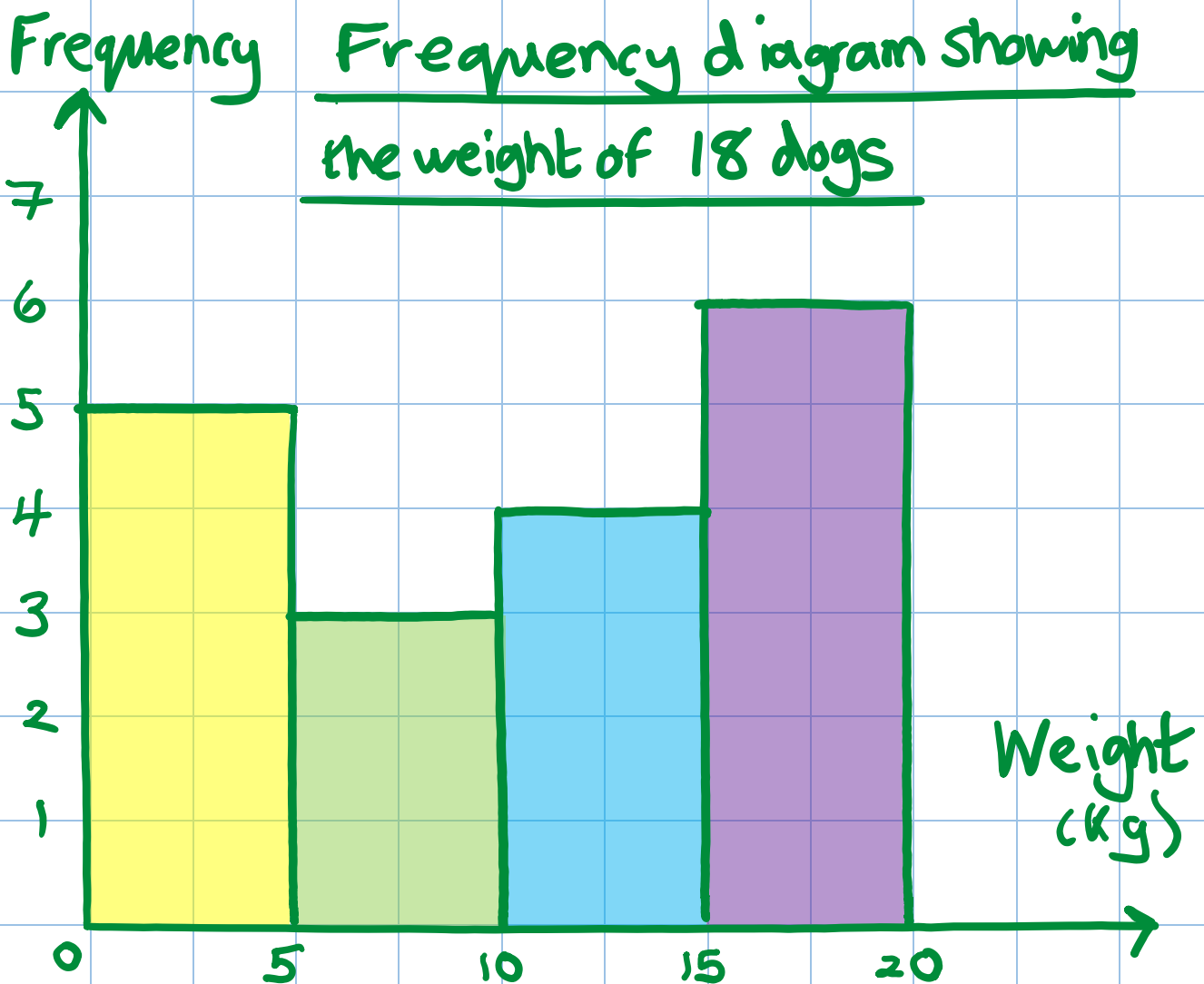


## Example 1



Draw a frequency diagram for the following data that shows the weight of 18 dogs.

Weight, $w$ kg	Frequency
$0 \leq w < 5$	5
$5 \leq w < 10$	3
$10 \leq w < 15$	4
$15 \leq w < 20$	6



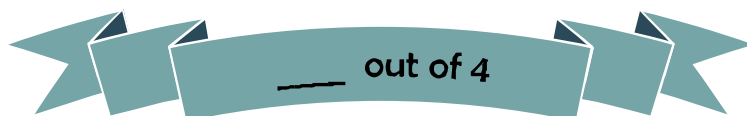
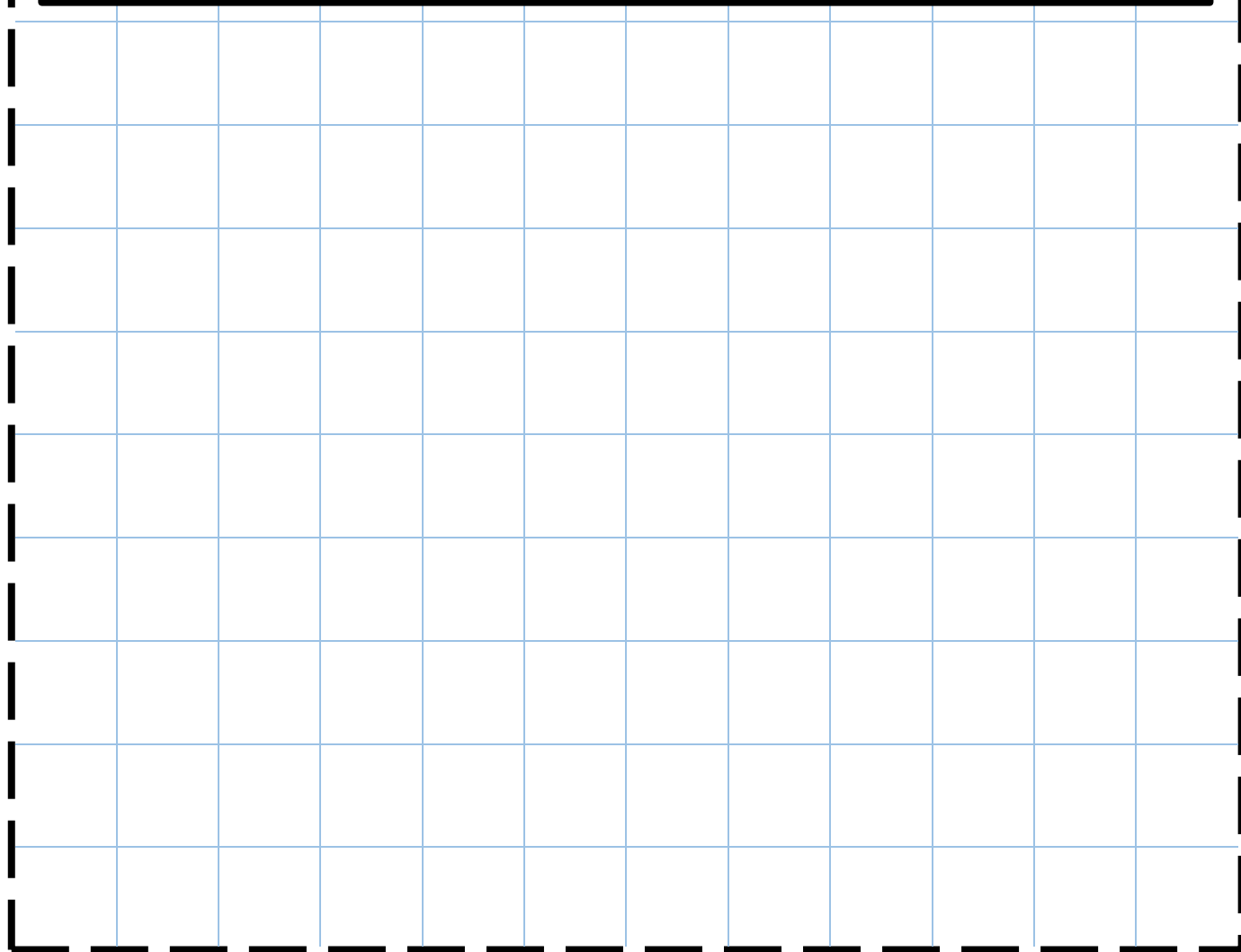


## Exercise 1



Draw a frequency diagram for the following data that shows the hours of sunshine in Rhyl during a fortnight.

Hours of sunshine, $h$ hours	Frequency
$0 \leq h < 2$	1
$2 \leq h < 4$	4
$4 \leq h < 6$	3
$6 \leq h < 8$	6



\_\_\_\_\_ out of 4



## Quiz 2



1) What is the mean of the following numbers?

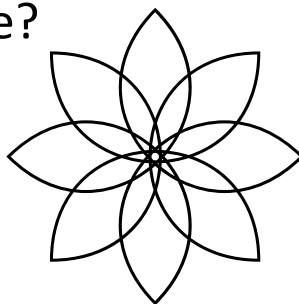
5, 7, 10, 3, 5

2) What is the place value of the 6 in the number 326,177?

3)  $34.74 \times 1000$

4) Explain how to recognise a multiple of 5.

5) What is the order of rotational symmetry of this shape?



6) How many days are there in February?

7) If 10 bottles of drink cost £12, how much would 3 bottles cost?

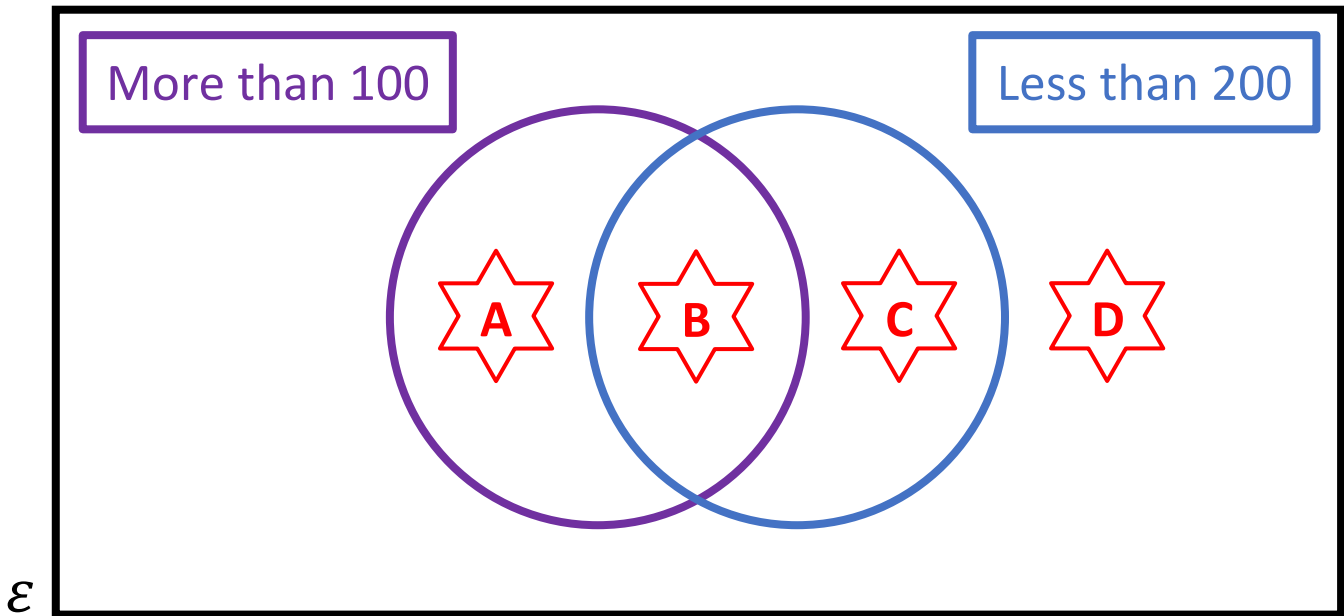
8) What type of angle is the angle  $340^\circ$ ?

9)  $8 \times 12$

— out of 9



# Venn Diagram Challenge



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

A

B

C

D



## Example 2



Draw a pie chart for the following data about 7E's favourite colour.

Colour	Frequency
Purple	6
Red	10
Blue	3
Pink	5

$$6 + 10 + 3 + 5 = 24$$

There are 24 learners in total

$$24 \overline{) 3360}$$

Pie chart to show 7E's favourite colour

$$\begin{array}{r} 15 \\ \times 6 \\ \hline 90 \\ 3 \end{array} \quad \begin{array}{r} 15 \\ \times 5 \\ \hline 75 \\ 2 \end{array}$$

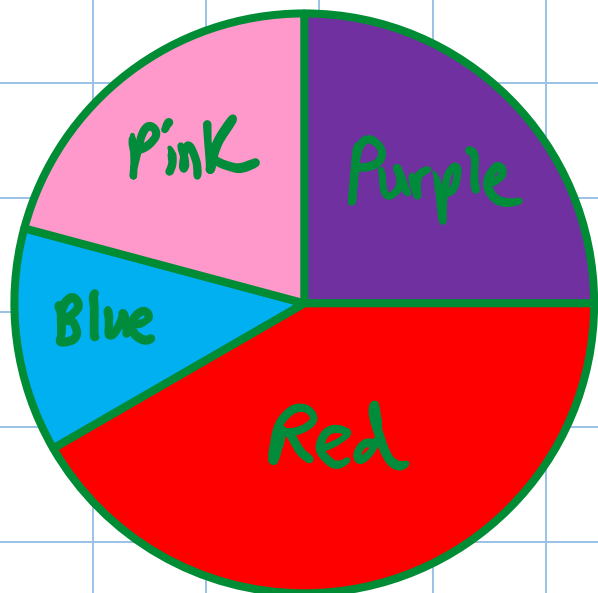
Purple  $15^\circ \times 6 = 90^\circ$

Red  $15^\circ \times 10 = 150^\circ$

Blue  $15^\circ \times 3 = 45^\circ$

Pink  $15^\circ \times 5 = 75^\circ$

$$\begin{array}{r} 360^\circ \\ \hline 21 \end{array} \checkmark$$



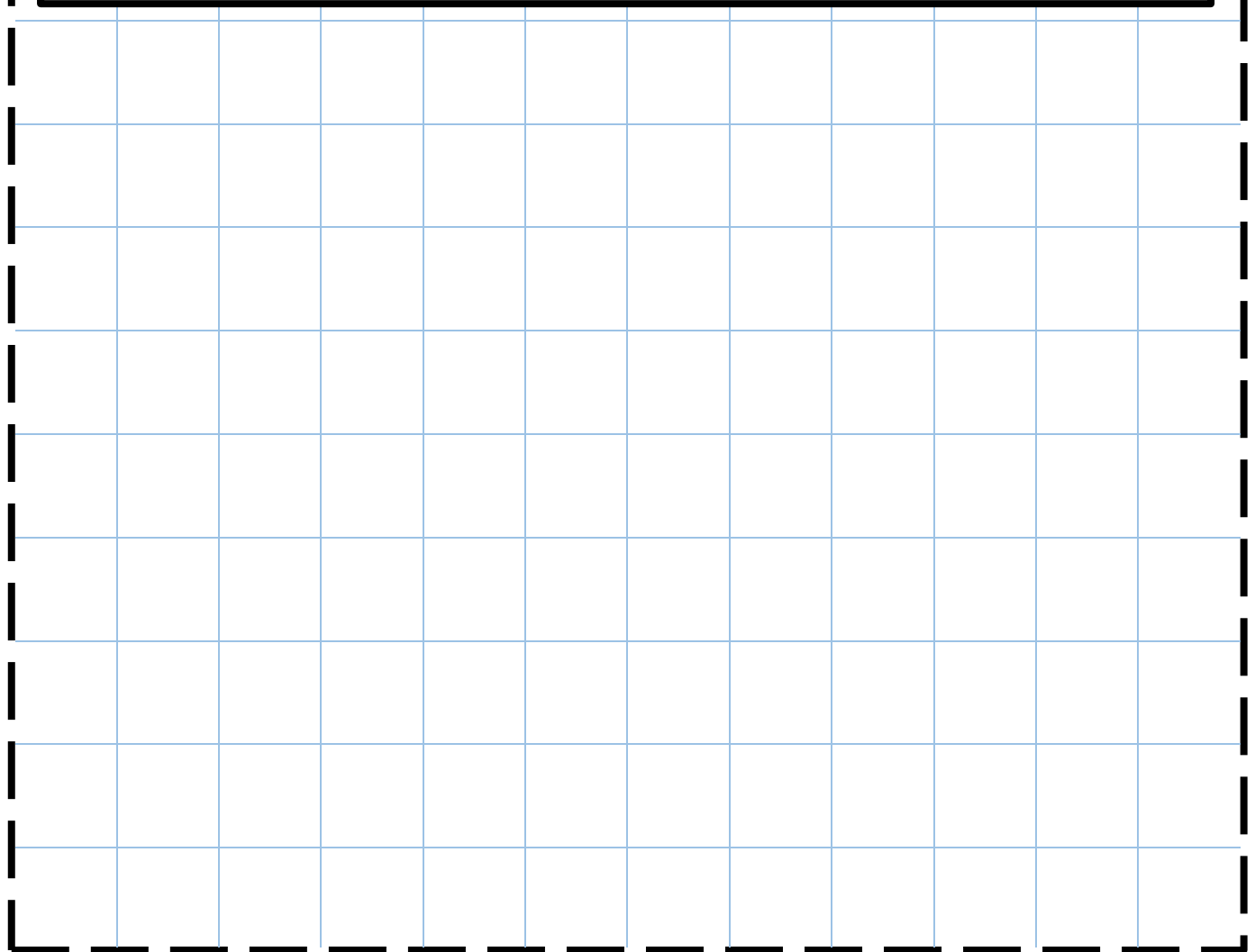


## Exercise 2



Draw a pie chart for the following data about 7R's favourite colour.

Colour	Frequency
Green	8
Yellow	5
Orange	4
Blue	3



— out of 5



## Quiz 3

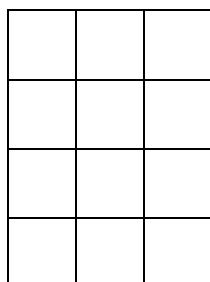


1) What type of data is numbers that have been measured?

2)  $73.84 \times 8$

3) Which number is five less than three thousand and two?

4) Shade 25% of the following grid.



5) Calculate the size of the red angle.



6)  $6^2 + 8^2$

7) How would the column vector  $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$  move a shape?

8) 10% of 371

9) Write 4,072 in words.

— out of 9

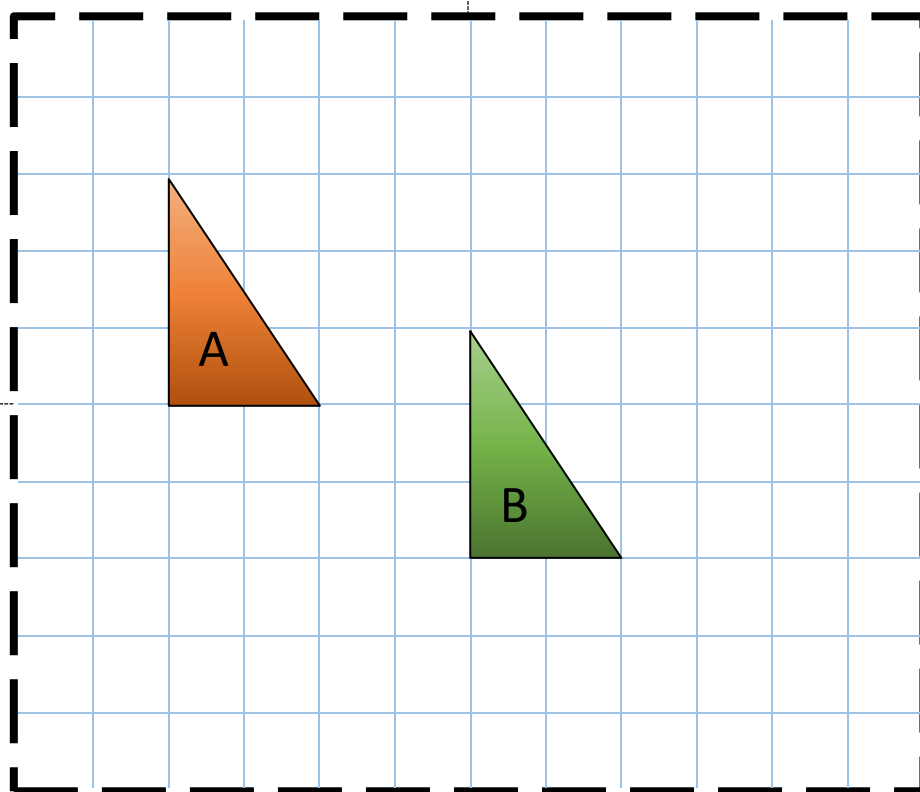


## Translating the Triangle



1) Write down the column vector that translates the triangle A to the triangle B.

2) Write down the column vector that translates the triangle B to the triangle A.



3) Draw a translation of the triangle A using the column vector  $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$ .

4) Draw a translation of the triangle B using the column vector  $\begin{pmatrix} 2 \\ 2 \end{pmatrix}$ .

— out of 4



## Example 3



The following table shows the shoe size for learners in 7E.

Shoe size	Number of children
3	3
4	6
5	8
6	6
7	2

Calculate the mean shoe size for learners in 7E.

$$3 + 6 + 8 + 6 + 2 = 25$$

$$3 \times 3 = 9$$

$$4 \times 6 = 24$$

$$5 \times 8 = 40$$

$$6 \times 6 = 36$$

$$7 \times 2 = 14$$

$$\begin{array}{r} 14 \\ 36 \\ 24 \\ 9 \\ \hline 123 \\ \hline 2 \end{array}$$

$$123 \div 25$$

$$= 4.92$$

← The mean

There are 25 learners in total

Total of everyone's shoe size



## Exercise 3



The following table shows the shoe size for learners in 7C.

Shoe size	Number of children
4	1
5	3
6	6
7	7
8	3


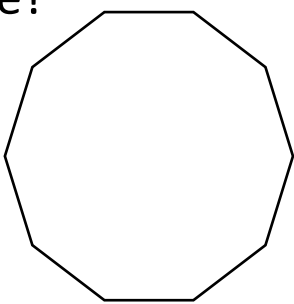
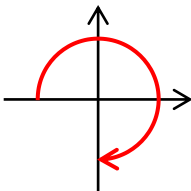
Calculate the mean shoe size for learners in 7C.

— out of 4



# Quiz 4



<p>1) <math>0.017 \div 10</math></p>	<p>2) What percentage of the shape is shaded?</p> 	<p>3) Draw a reflex angle.</p>
<p>4) Calculate 30% of £163</p>	<p>5) What is the name of this shape?</p> 	<p>6) <math>11^2</math></p>
<p>7) Will the year 2064 be a leap year?</p>	<p>8) How many minutes are there between 11:45 am and 1:35 pm?</p>	<p>9) What type of turn is shown?</p> 

— out of 9



## Quiz 5



$10\%$ of $50 =$	$6 \times 4 =$	$12 + 9 =$	$14 - 8 =$	$3^2 =$
$2 \times 9 =$	$50\%$ of $70 =$	$7^2 =$	$23 + 16 =$	$27 - 6 =$
$10^2 =$	$6 \times 8 =$	$20\%$ of $15 =$	$31 - 9 =$	$43 + 18 =$
$40 - 11 =$	$9^2 =$	$9 + 27 =$	$8 \times 7 =$	$25\%$ of $24 =$
$9 \times 6 =$	$10\%$ of $43 =$	$50 - 24 =$	$1^2 =$	$44 + 14 =$

— out of 25



## Example 4



Rhys buys a piece of art for £2,500.  
 In a year the value of the piece of art increases by 17%.  
 What is the new value of the piece of art?

10%

$$£2,500 \div 10 = £250$$

1%

$$£250 \div 10 = £25$$

7%

$$\begin{array}{r} 25 \\ \times 7 \\ \hline 175 \end{array}$$

17%

Add the 10% to the 7%

New Value

original value + increase

$$\begin{array}{r}
 250 \\
 + 175 \\
 \hline
 \underline{£425}
 \end{array}$$

$$\begin{array}{r}
 2500 \\
 + 425 \\
 \hline
 \underline{\underline{£2925}}
 \end{array}$$

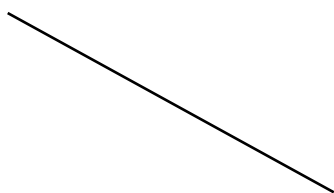




## Quiz 6



1) Draw an angle of  $38^\circ$  on the line below.



2) What is the mean of the following numbers?

5, 4, 12, 3, 6, 6

3) What is the range of the following numbers?

5, 4, 12, 3, 6, 6

4) 70% of 63

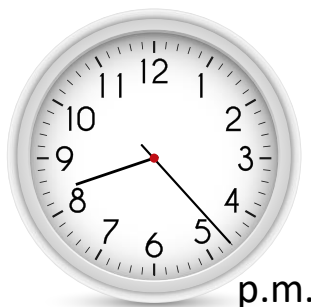
5)  $5^3 - 6^2$

6) Draw a rectangle.

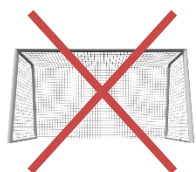
7) Which number is half way between 8 and 13?

8) Write down the time using the 24-hour clock.

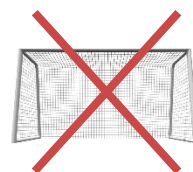
9) Write down an example of qualitative data.



— out of 9



## Hari's Calculators



Hari buys 60 calculators.

He pays £3 for each calculator.

He sells 50% of the calculators for £5 each.

He sells 20% of the calculators for £4 each.

What can you calculate from this information?



# Evaluating the Workbook



# Notes



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Co-ordinates

in the Four

Quadrants

Additional Tasks



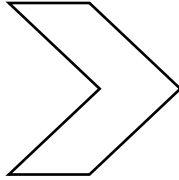
# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example Problem Pair 2	8–9
Quiz 3	10
The Driving Test	11
Example Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example Problem Pair 4	16–17
Quiz 5	18
Quiz 6	19



## Quiz 1



1) The mean of 8 and 12	2) $8 - 10$	3) What type of angle is the angle $108^\circ$ ?
4) $7^2$	5) 10% of 47	6) The range of 6, 9, 5, 3, 4, 7
7) How many equal sides does an isosceles triangle have?	8) Write 8:34pm in the 24-hour clock.	9) Add symmetry lines to the following shape. 

— out of 9



## Example 1



Without a calculator, calculate 27% of £94.

10%  
1%

$$\begin{aligned} \pounds 94 \div 10 &= \pounds 9.40 \\ \pounds 9.40 \div 10 &= \pounds 0.94 \end{aligned}$$

20%

9.40

x 2

£ 18.80

7%

0.94

x 7

£ 6.58

6 2

27%

18.80

+ 6.58

£ 25.38

1 1



# Exercise 1



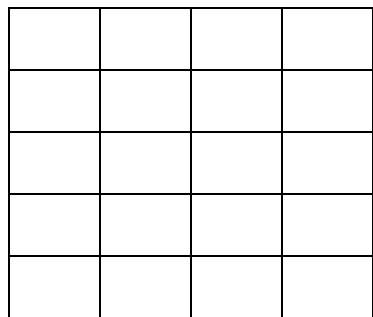
Without a calculator, calculate 76% of £83.




Quiz 2

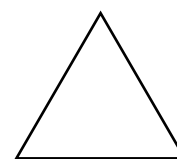


1) Shade 20% of the shape below.



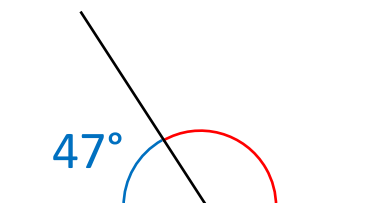
2)  $4^3$

3) What is the order of rotational symmetry of any equilateral triangle?



4) Was 1906 a leap year?

5) Calculate the size of the red angle.



6) The range of the following numbers, that are in order, is 8. What is the missing number?

4, 7, 9, 10, ?

7) Do you need to include gaps between the bars in a bar chart?

8) Circle the odd numbers below.

82    425    9203

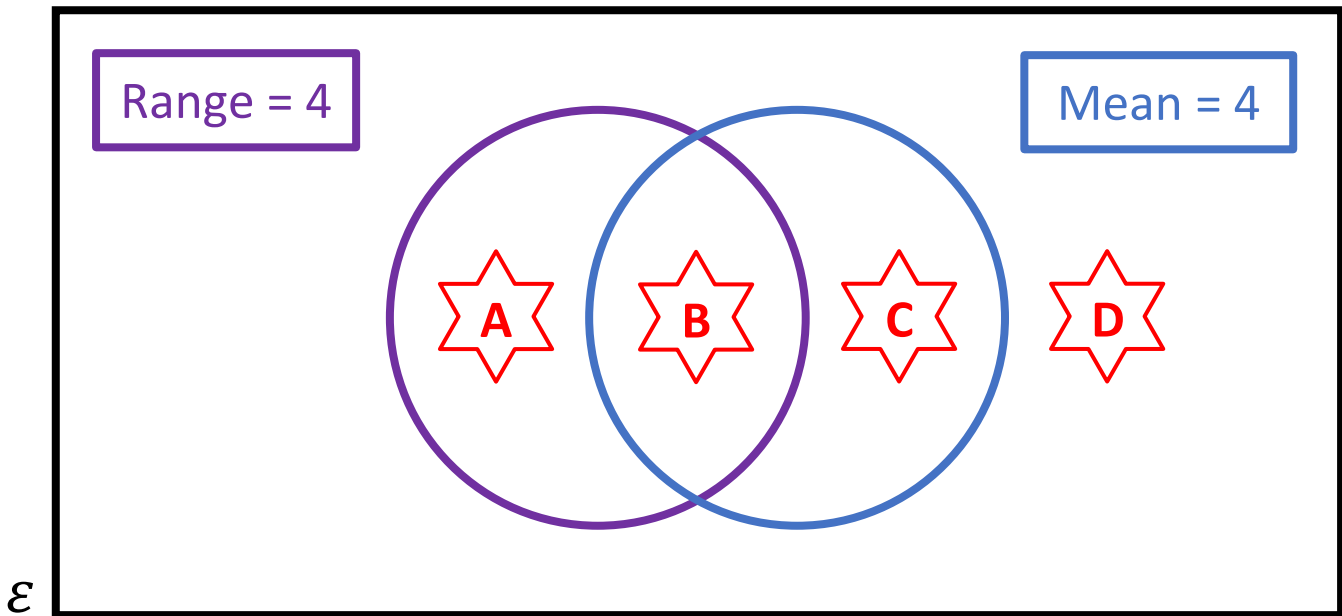
9037    1530    43

9)  $34 \div 10$

— out of 9



Venn Diagram Challenge 1



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







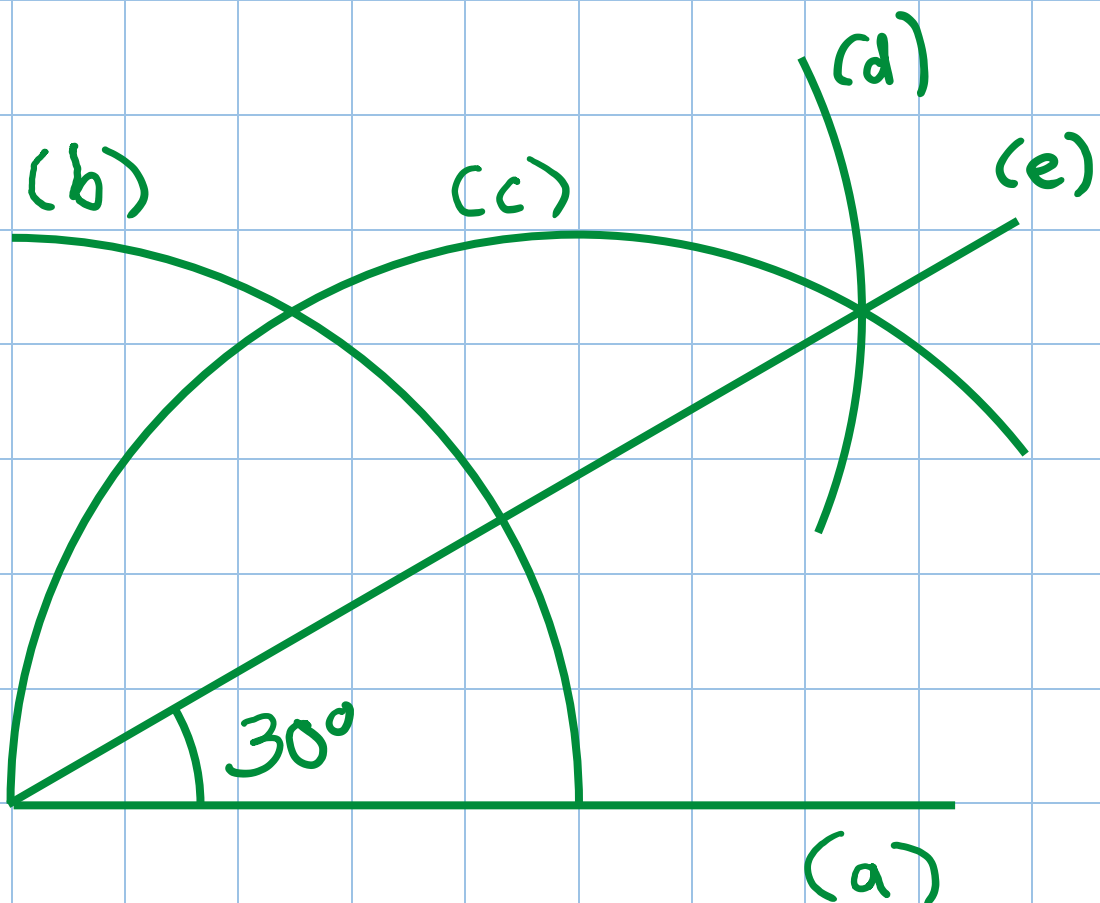




## Example 2



Using only a compass and ruler (no protractor), draw an angle of  $30^\circ$ .

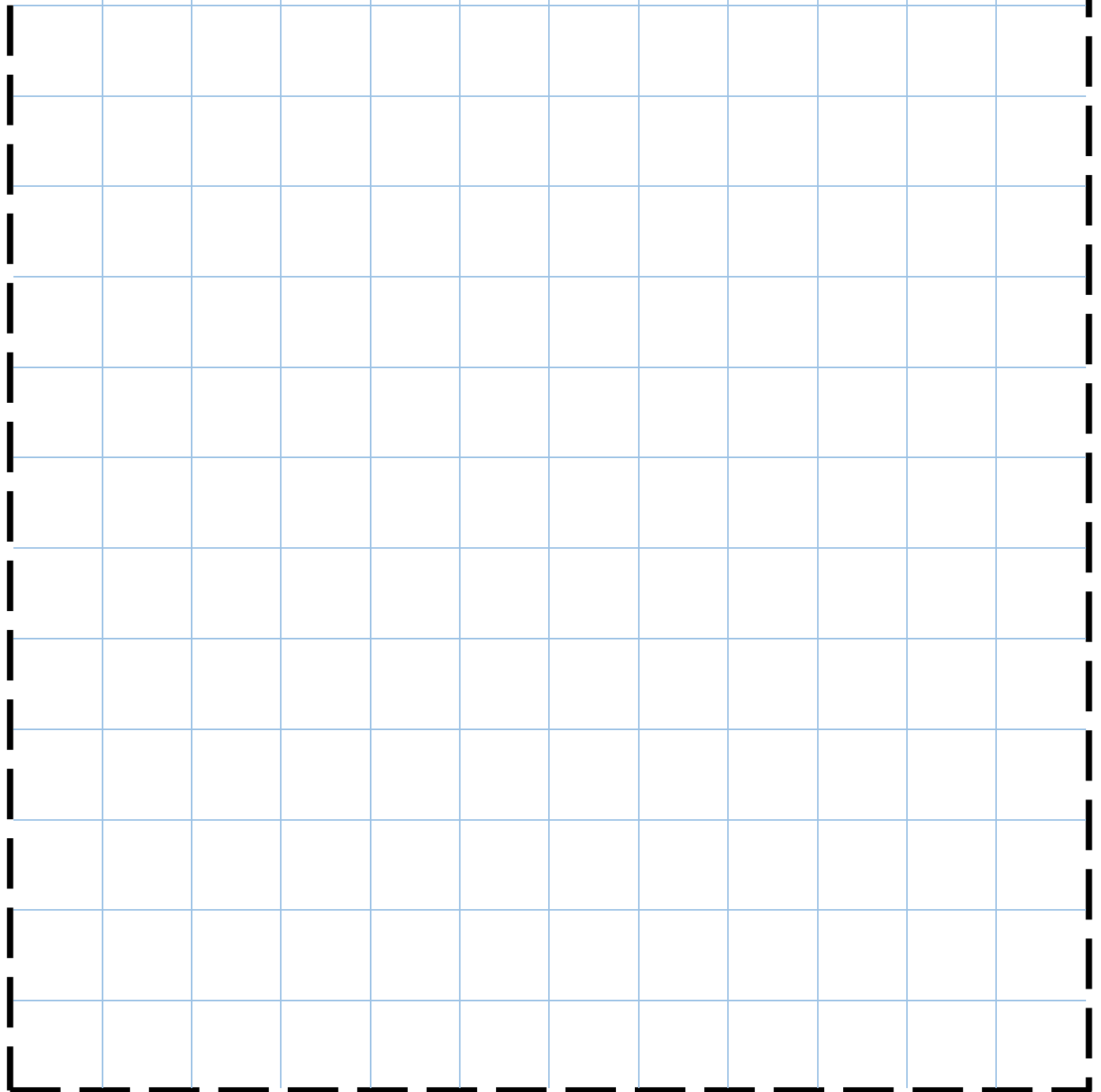




## Exercise 2



Using only a compass and ruler (no protractor), draw an angle of  $30^\circ$ .



— out of 2



## Quiz 3



1) How many days are in March?	2) What type of angle is the angle $180^\circ$ ?	3) The mean of 20 and 32
4) $-5 + 2$	5) Would “the number of brothers” be discrete quantitative data or continuous quantitative data?	6) Write the number 4,028 in words.
7) 20% of £140.	8) $4.3 - 2.75$	9) In which quadrant is the coordinate $(-4, 5)$ ?

— out of 9



# The Driving Test

1) What percentage of the people needed 2 tests in order to pass their driving test?

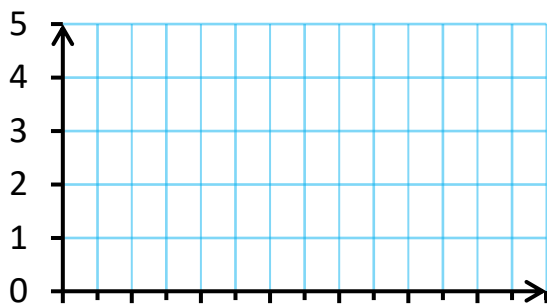
2) What was the mean number of tests needed to pass?

How many times a group of people took to pass their driving test.

Number of tests	Frequency
1	2
2	4
3	3
4	1

3) Draw a bar chart to show this data.

4) Ben intends to draw a pie chart to show this data. What would be the size of the sector for “2 tests”?



\_\_\_\_\_ out of 4



## Example 3



Calculate an estimate for the mean weight of the following cats.

Weight, $w$ kg	Frequency
$0 \leq w < 2$	2
$2 \leq w < 4$	10
$4 \leq w < 6$	7
$6 \leq w < 8$	1

Weight, $w$ Kg	Frequency	Mid-point	Multiply
$0 \leq w < 2$	2	1	2
$2 \leq w < 4$	10	3	30
$4 \leq w < 6$	7	5	35
$6 \leq w < 8$	1	7	7
	<u>20</u>		<u>74</u>

Divide by the total of the frequencies, NOT by the number of classes

Multiply the frequency by the mid-point

$$74 \div 20 = \underline{3.7 \text{ Kg}}$$

**Exercise 3**

Calculate an estimate for the mean weight of the following sheepdogs.

Weight, $w$ kg	Frequency
$4 \leq w < 6$	1
$6 \leq w < 8$	9
$8 \leq w < 10$	13
$10 \leq w < 12$	2



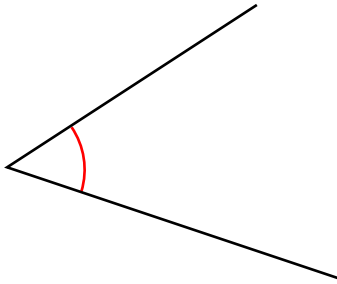
— out of 4



## Quiz 4



1) Measure the angle below.



2) Circle the correct answer.

Even number  $\times$   
Odd number is  
always...

even    odd

3)  $5^3$

4) 25% of \$60.

5) In which quadrant is the coordinate  $(6, -2)$ ?

6)  $5.6 \div 10$

7) Two of the angles in a triangle are  $25^\circ$  and  $75^\circ$ .  
What is the size of the third angle?

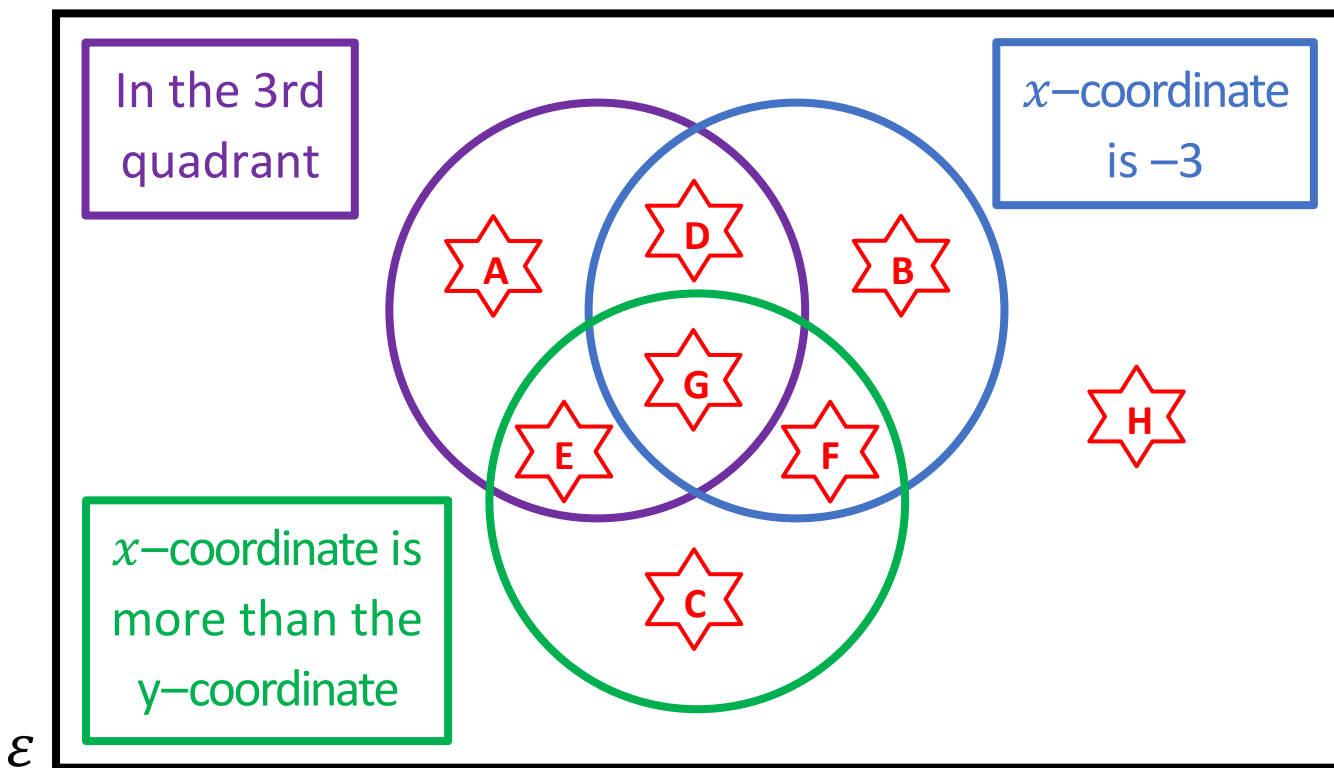
8) The range of 4, 8, 15, 6, 2, 8, 14.

9)  $43.2 + 2.86$

— out of 9



# Venn Diagram Challenge 2



Write a co-ordinate that could fit into each region.  
If you think a region is impossible to fill, explain why!

★ A		★ E	
★ B		★ F	
★ C		★ G	
★ D		★ H	



## Example 4



Sophie wants to invest £6,000 into Lloyds bank at a simple interest rate of 3% a year. Sophie wants to withdraw all of the money from the bank after four years. How much money can Sophie withdraw from the bank after four years?

10%  
1%  
3%

$$£6,000 \div 10 = £600$$

$$£600 \div 10 = £60$$

$$£60 \times 3 = £180$$

$$\begin{array}{r}
 180 \\
 \times \quad 4 \\
 \hline
 £720 \\
 \hline
 3
 \end{array}$$

$$\begin{array}{r}
 6000 \\
 + 720 \\
 \hline
 £6720 \\
 \hline
 \hline
 \end{array}$$

Multiply by 4 as the money is in the bank for 4 years.

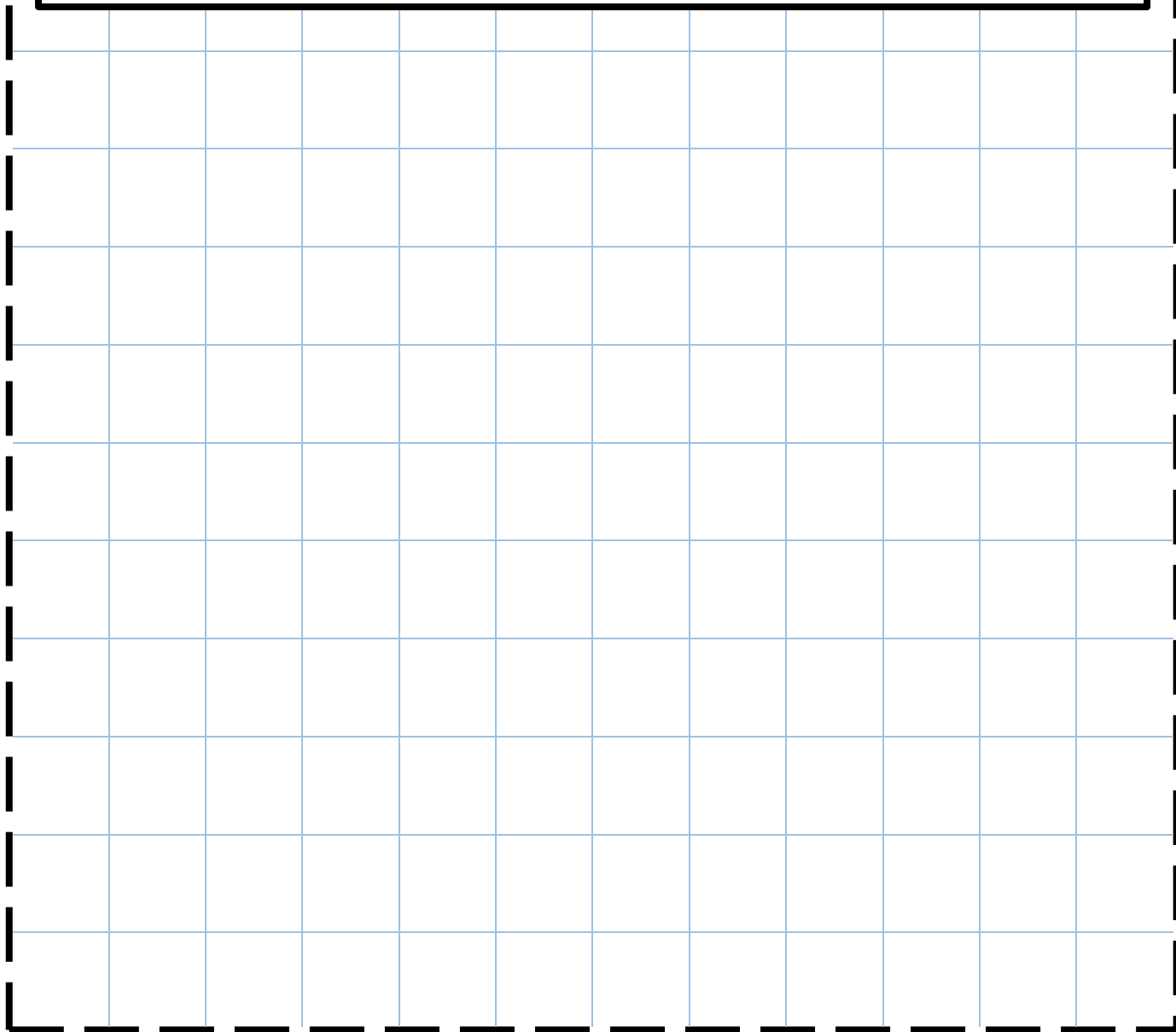
Add the interest to the original investment



## Exercise 4



Arwyn wants to invest £8,000 into HSBC bank at a simple interest rate of 4% a year. Arwyn wants to withdraw all of the money from the bank after six years. How much money can Arwyn withdraw from the bank after six years?





## Quiz 5



1)  $-6 + 3$

2)  $-6 - 3$

3)  $3 - 6$

4)  $6 + -3$

5)  $3 + -6$

6)  $-6 + -3$

7)  $-3 + -6$

8)  $6 - 3$

9)  $-3 + 6$

— out of 9



## Quiz 6



$7 \times 3 =$	$2 \times 12 =$	$6 \times 4 =$	$20 \div 2 =$	$7 \times 5 =$
$6 \times 6 =$	$30 \div 5 =$	$1 \times 20 =$	$8 \times 9 =$	$0 \times 5 =$
$7 \times 8 =$	$12 \times 4 =$	$30 \div 10 =$	$2 \times 5 =$	$4 \times 11 =$
$7 \times 6 =$	$9 \times 10 =$	$6 \times 12 =$	$7 \times 7 =$	$36 \div 12 =$
$36 \div 2 =$	$2 \times 3 =$	$9 \times 4 =$	$9 \times 12 =$	$6 \times 9 =$

— out of 25

## Evaluating the Workbook



## Notes



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**Factors and**

**Multiples**

**Additional Tasks**





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Isosceles Triangle	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
The Soil and Seeds	19



## Quiz 1



1)  $4^2$

2)  $5^2$

3)  $6^2$

4)  $2^3$

5)  $3^3$

6)  $4^3$

7)  $7^2 + 1^2$

8)  $5^3 - 8^2$

9)  $10^3 - 10^2$

\_\_\_ out of 9



## Example 1



Without a calculator, calculate the mean and range of the following numbers.      7, 3, 6, 10, 2, 1, 6, 7, 4, 2

The mean :

$$\begin{aligned} & \underbrace{7 + 3 + 6}_{10} + \underbrace{10 + 2 + 1 + 6}_{19} + \underbrace{7 + 4 + 2}_{19} \\ & = 10 + 19 + 19 \\ & = 48. \end{aligned}$$

$$48 \div 10 = \underline{4.8}$$

The Range:

$$10 - 1 = \underline{9}$$

The mean is the total divided by the number of data items.

The range is the greatest number subtract the least number.





## Quiz 2

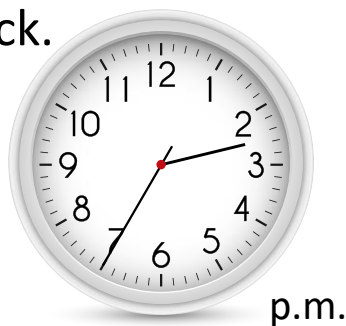


1) Circle the multiples of 3.

45    85    114

327    414    927

2) Write the time in the 24-hour clock.



3) What type of angle is the angle  $90^\circ$ ?

4)  $2.7 + 1.5$

5) 10% of £56

6)  $7 \times 8$

7) Write the number 7,050,000 in words.

8) A carton of milk costs 74p. How much would 3 cartons cost?

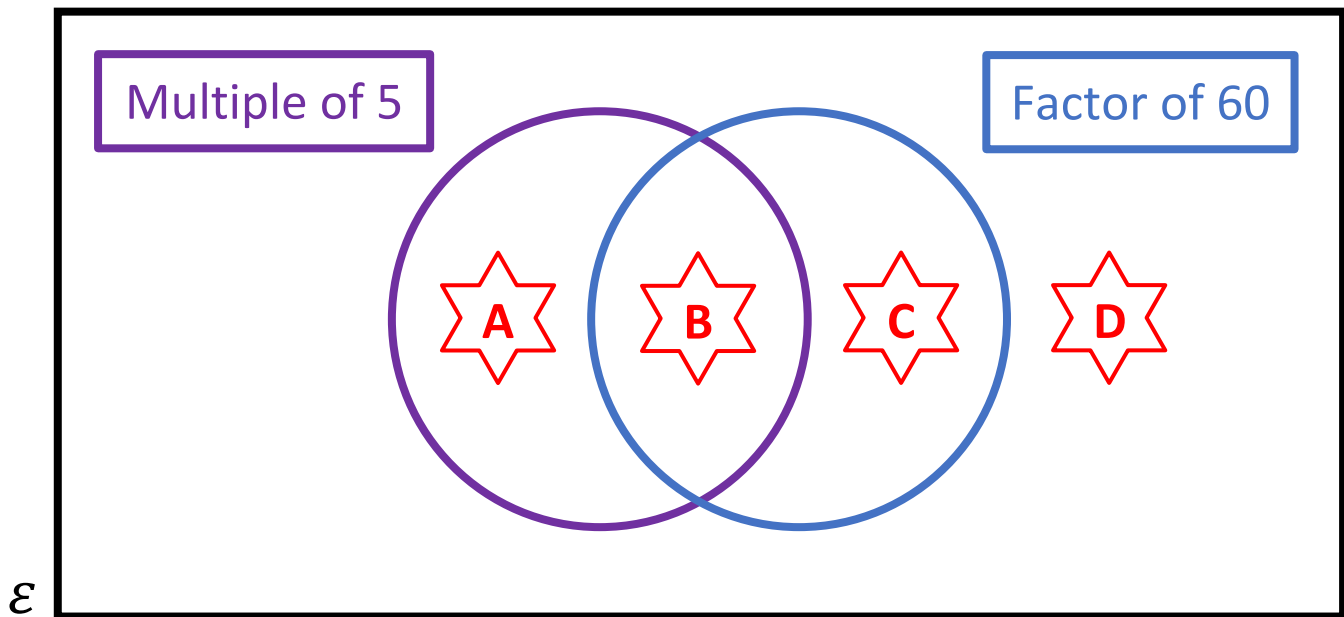


9) How many days are there in December?

— out of 9



Venn Diagram Challenge 1



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











## Example 2



Shade the least number of squares so that the dotted lines are symmetry lines.

The grid contains the following shaded squares:

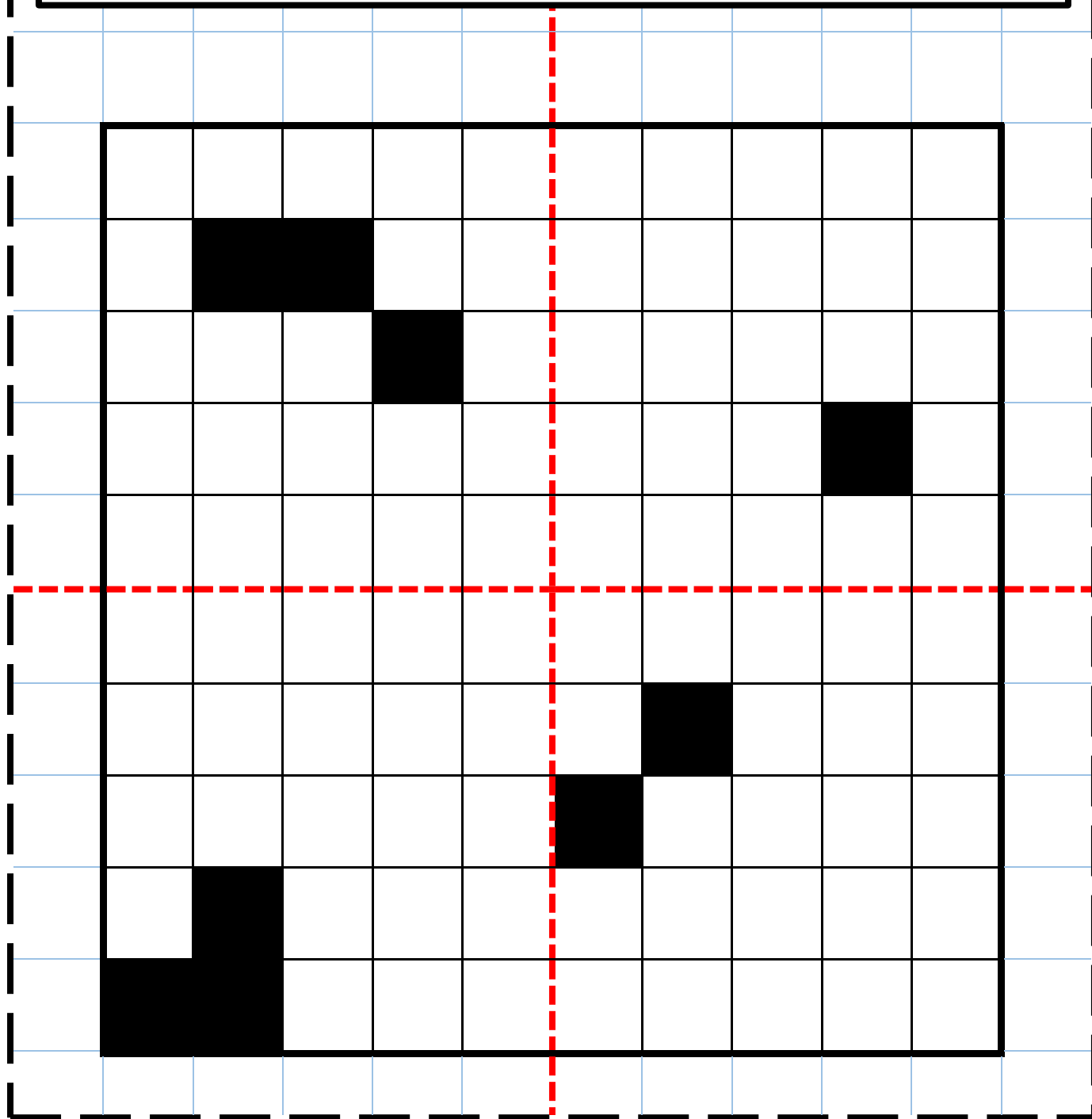
- Black squares:** (2,2), (2,3), (3,3), (4,5), (8,2), (8,5)
- Green squares:** (1,3), (1,7), (2,4), (2,5), (2,7), (3,4), (3,5), (3,6), (3,7), (4,4), (6,4), (6,5), (7,3), (7,4), (7,6), (7,7), (8,3), (8,4), (8,7), (8,8), (9,3), (9,7)



## Exercise 2



Shade the least number of squares so that the dotted lines are symmetry lines.



\_\_\_ out of 4



## Quiz 3

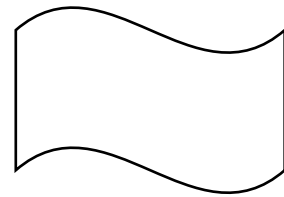


1) Shade 50% of the shape below.



2) How many days are there in a leap year?

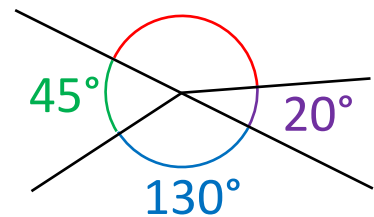
3) What is the order of symmetry of the shape below?



4)  $5 - 3.7$

5)  $3.6 \times 100$

6) Calculate the size of the red angle.



7) Is 91 a multiple of 7?

8) List all the factors of 18.

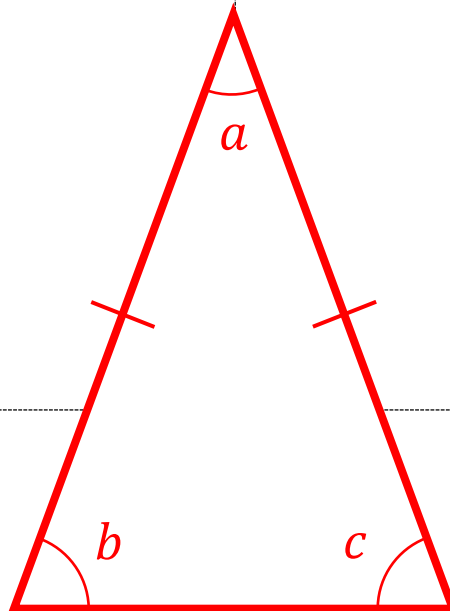
9)  $8^2$

\_\_\_ out of 9



1) If  $a = 40^\circ$ , what is the size of the angles  $b$  and  $c$ ?

2) If  $b = 40^\circ$ , what is the size of the angles  $a$  and  $c$ ?



3) If  $a$  is double  $b$ , what is the size of the angles  $a$ ,  $b$  and  $c$ ?

4) If  $a$  is half of  $b$ , what is the size of the angles  $a$ ,  $b$  and  $c$ ?

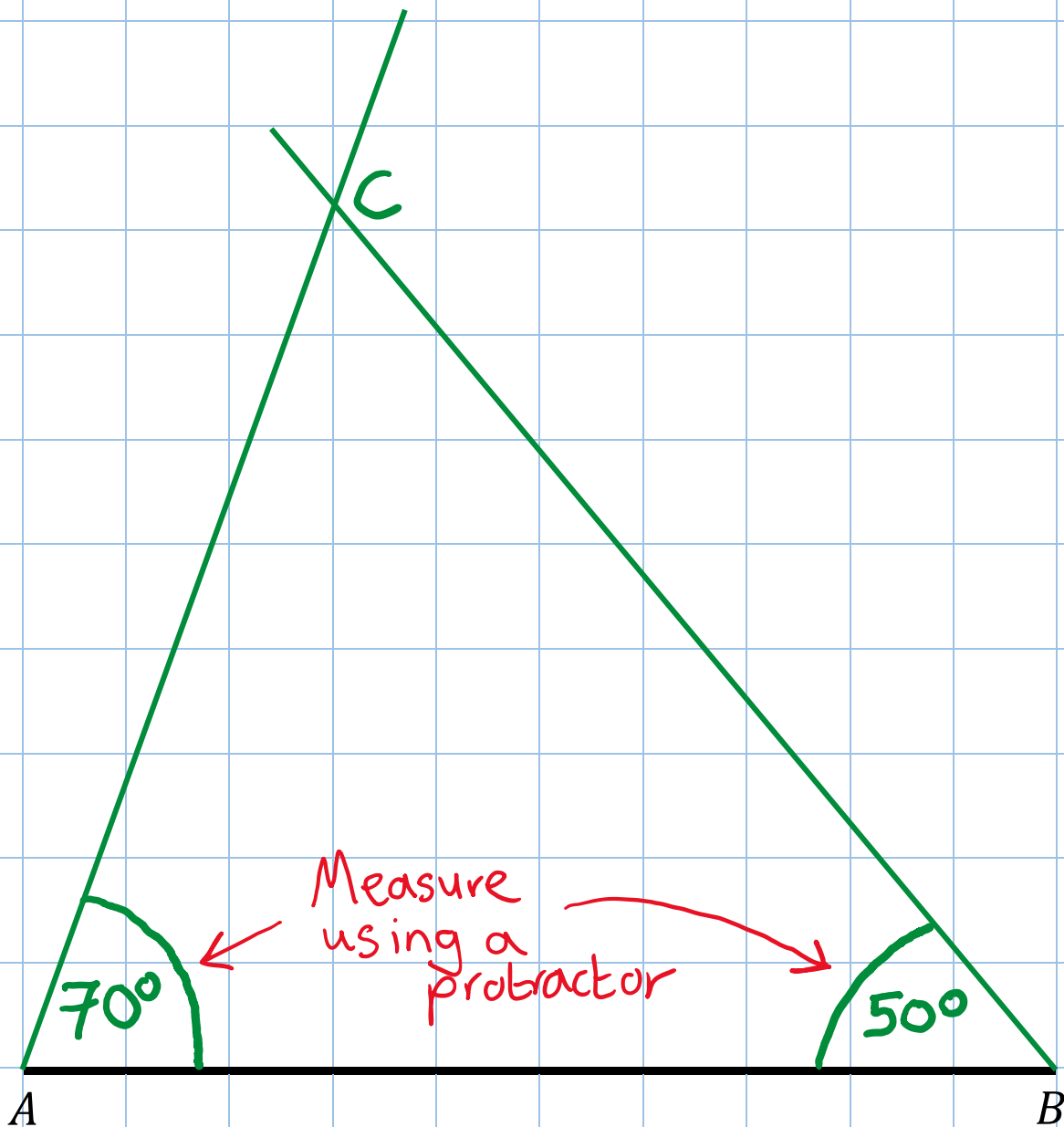




## Example 3



Draw a triangle  $ABC$  where  $\hat{A}BC = 50^\circ$  and  $\hat{B}AC = 70^\circ$ .  
(The line  $AB$  has been drawn for you.)

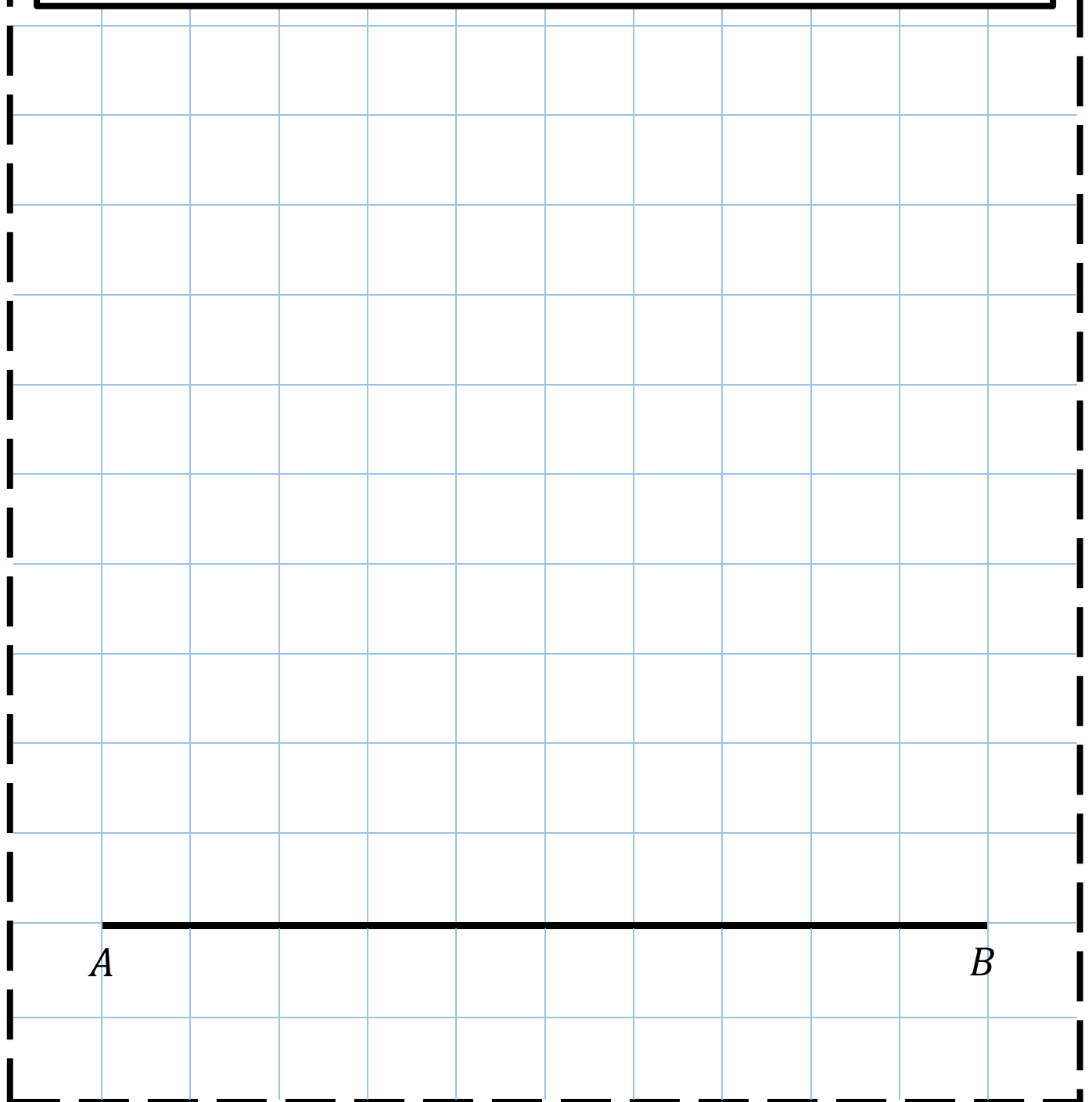




## Exercise 3



Draw a triangle  $ABC$  where  $\hat{A}BC = 80^\circ$  and  $\hat{B}AC = 40^\circ$ .  
(The line  $AB$  has been drawn for you.)



\_\_\_ out of 3



## Quiz 4



1) Is 27 a prime number?

2) How many edges does a hexagon have?

3) How many years are there in half a century?

4)  $13 \times 6$

5)  $\sqrt{36}$

6) In which quadrant is the coordinate  $(-3, 6)$ ?

7) How much money is here?

1p	23 pieces
2p	7 pieces
5p	5 pieces
10p	3 pieces

8) Explain how to calculate the range of some data.

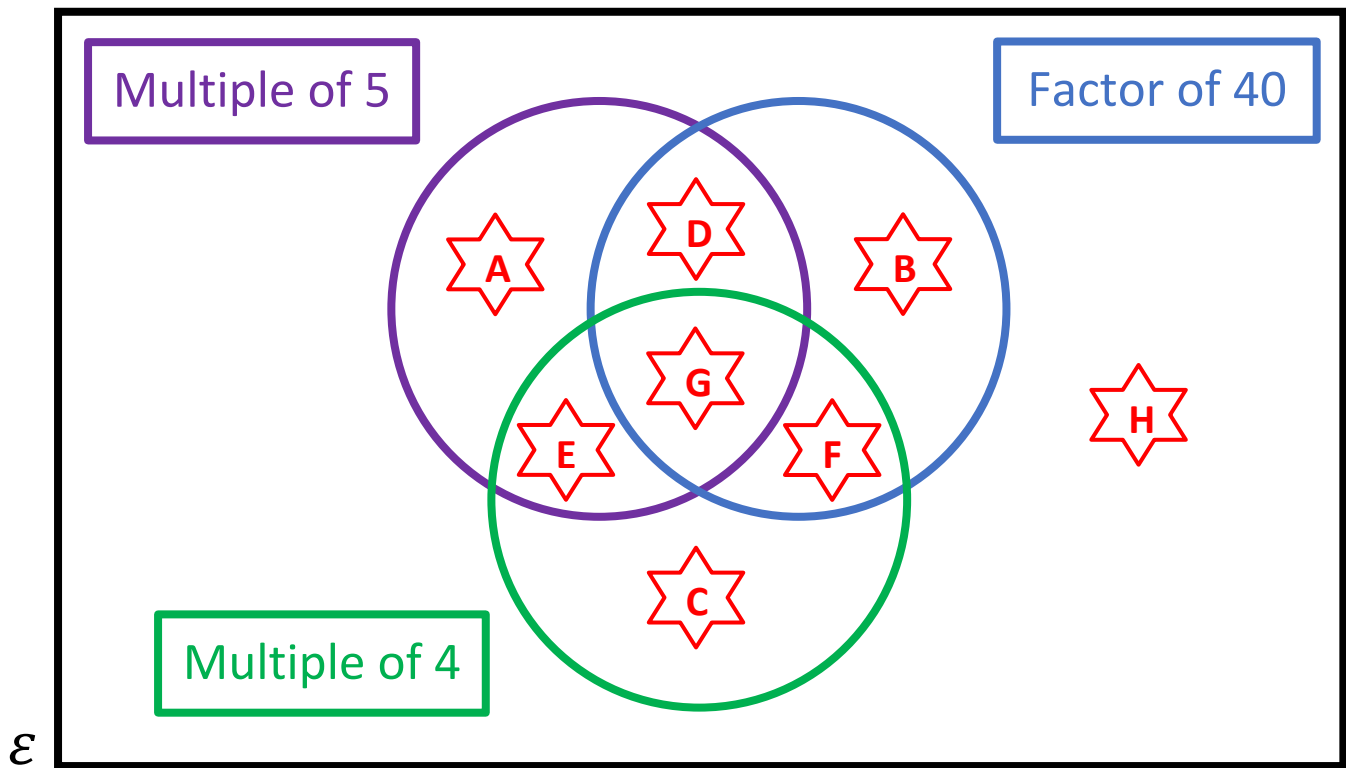
9) Circle all the factors of 8.

1   2   3   4  
5   6   7   8

\_\_\_ out of 9



# 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!




### Example 4



Showing all your working, explain whether the years 1834 and 1936 were leap years.

$$\begin{array}{r}
 0458 \text{ r } 2 \rightarrow \text{Remainder } 2 \\
 4 \overline{) 1834} \\
 \hline
 \end{array}$$

so 1834 was not a leap year

$$\begin{array}{r}
 0484 \rightarrow \text{Remainder } 0 \\
 4 \overline{) 1936} \\
 \hline
 \end{array}$$

so 1936 was a leap year.





## Quiz 5



1) List all the factors of 34.

2)  $\sqrt[3]{64}$

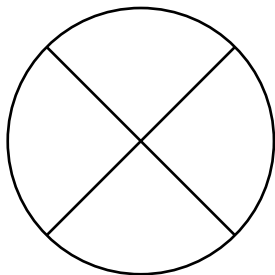
3)  $6.4 + 2.95$

4) What type of angle is the angle  $5^\circ$ ?

5) Calculate 20% of £60.

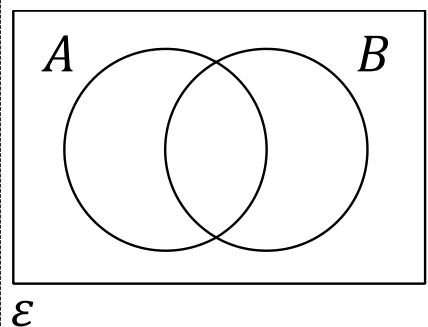
6) How many days are there in April?

7) Shade 25% of the shape below.

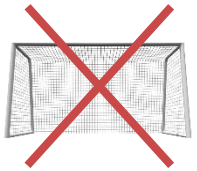


8) The mean of 8, 4, 9

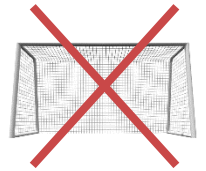
9) Shade  $A \cap B$ .



\_\_\_ out of 9



## The Soil and Seeds



**£3.88**



Elin buys 2 bags of soil and 3 packets of seeds.  
She receives a discount of 25%, and pays with a £20 note.  
What can you calculate from this information?

## Evaluating the Workbook



## Notes



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**Introducing**

**Algebra**

**Additional Tasks**





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
Co-ordinates	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Product of Prime Factors	19



## Quiz 1



1)  $7 \times 9$

2)  $2.4 + 6.8$

3)  $28 \div 4$

4)  $3^2$

5)  $\sqrt{25}$

6) List all the factors of 12.

7) Circle the even numbers.

863    90    203

90263    8    378

8) Is 33 a prime number?

9) 50% of £25

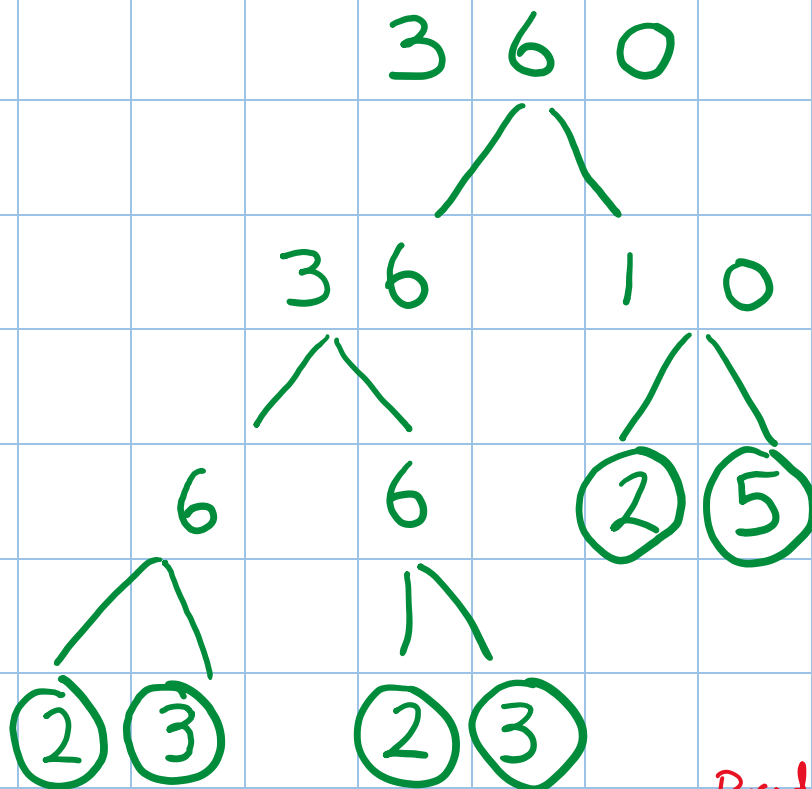
\_\_\_ out of 9



## Example 1



Write 360 as a product of prime factors in index form.



A factor tree for 360

Product of prime factors

$$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$360 = 2^3 \times 3^2 \times 5$$

Index form





## Quiz 2



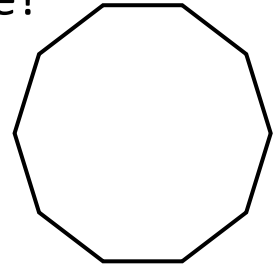
1) Which number comes next?

14, 18, 22, 26, 30,

\_\_\_\_\_

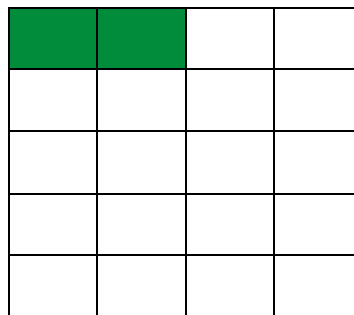
2) Write 18:58 in the 12-hour clock.

3) What is the name of this shape?



4)  $3 + 4 \times 5$

5) Shade 10% of the shape below.



6) List all the single digit prime numbers.

7)  $15 \times 8$

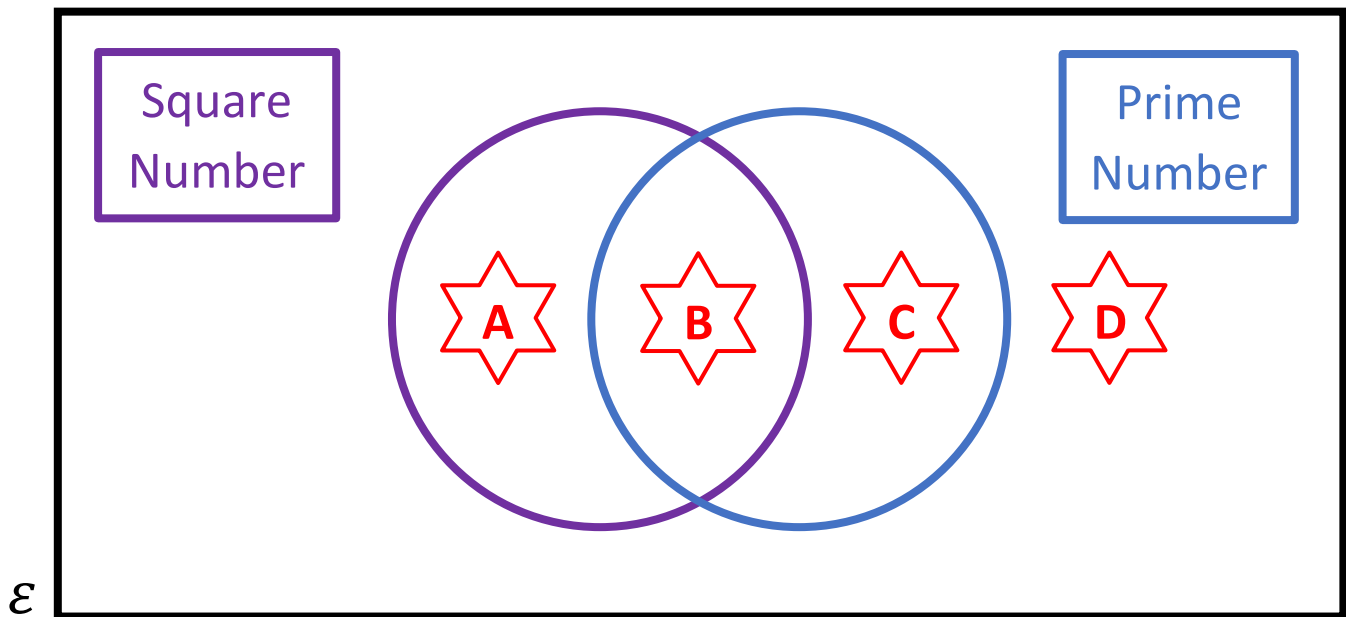
8)  $\text{£}1.40 - 54\text{p}$

9) What is the total internal angles of any triangle?

\_\_\_\_\_ out of 9



# Venn Diagram Challenge 1



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







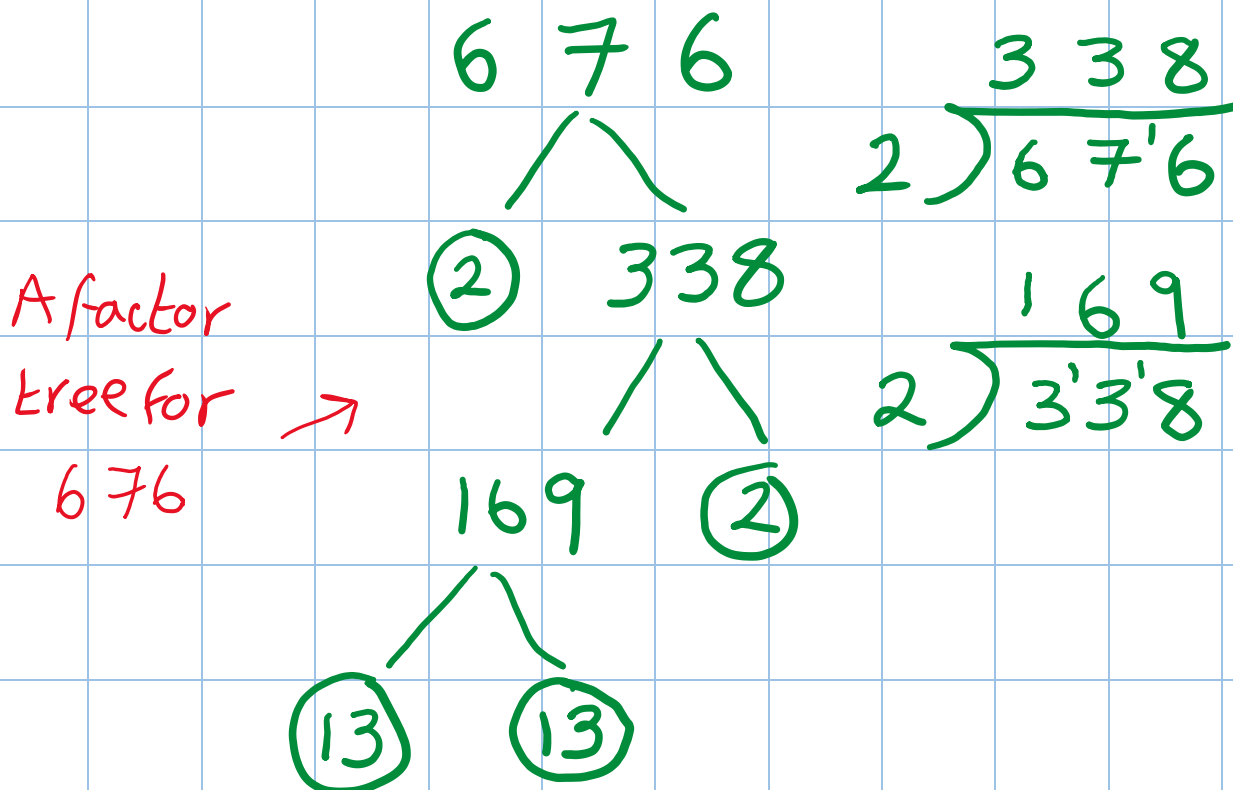




## Example 2



Decide whether or not 676 is a square number.



$$676 = 2 \times 2 \times 13 \times 13$$

$$676 = 2^2 \times 13^2 \quad \leftarrow \text{Index form}$$

676 is a square number as the powers in the index form are all even numbers.



## Exercise 2



Decide whether or not 588 is a square number.

\_\_\_ out of 3



## Quiz 3



1)  $\sqrt{81}$

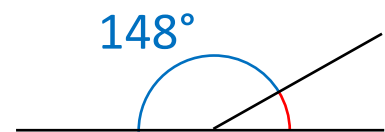
2) In which quadrant is the coordinate  $(-8, -3)$ ?

3)  $8 + -3$

4)  $36 \div 100$

5) How many edges does a hexagon have?

6) Calculate the size of the red angle.

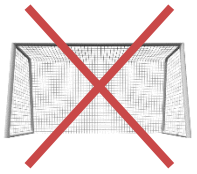


7) The mean of 1, 3, 5, 7

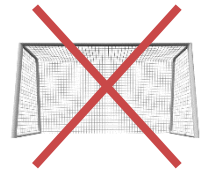
8)  $1^3$

9) 30% of 20

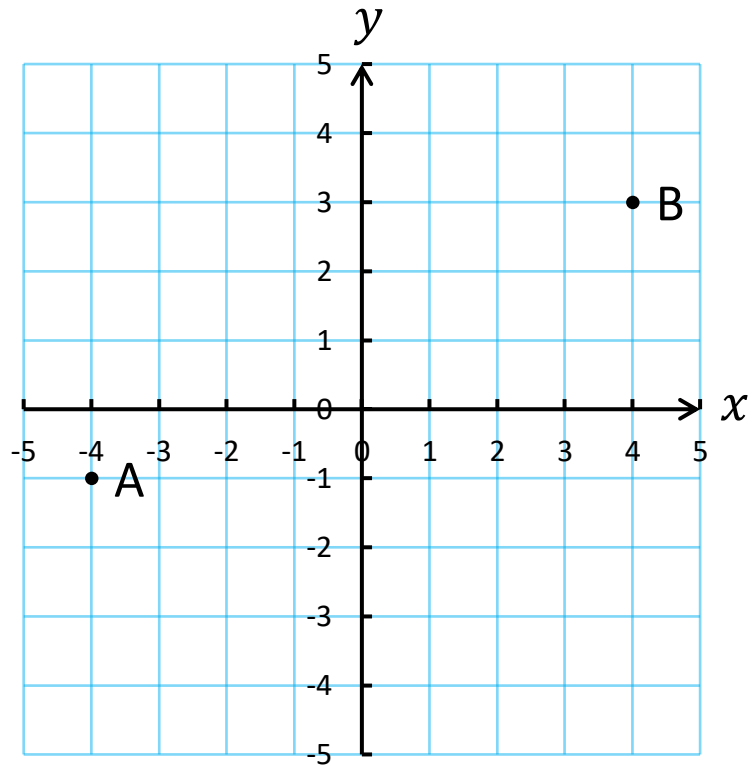
\_\_\_ out of 9



# Co-ordinates



What can you find from this information?

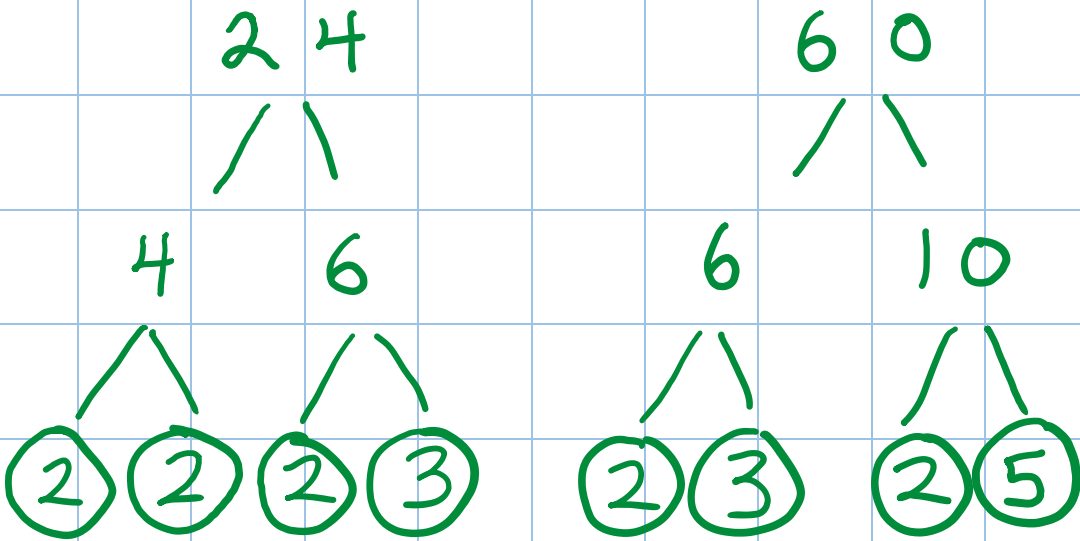




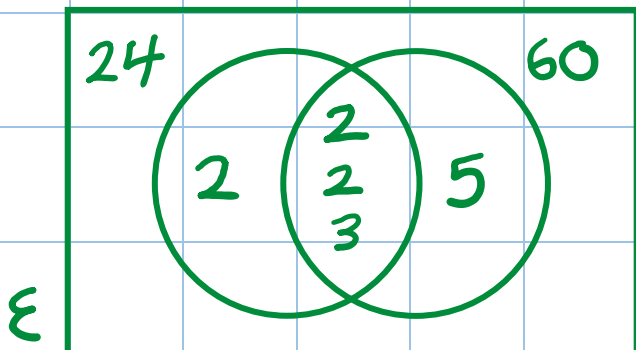
# Example 3



Find the highest common factor and lowest common multiple of 24 and 60.



The numbers in the middle of the Venn diagram



Highest Common Factor =  $2 \times 2 \times 3$   
 $= 12$

Every number in the Venn diagram

Lowest Common Multiple  
 $= 2 \times 2 \times 2 \times 3 \times 5$   
 $= 24 \times 5$   
 $= 120$

$$\begin{array}{r} 24 \\ \times 5 \\ \hline 120 \end{array}$$



### Exercise 3



Find the highest common factor and lowest common multiple of 30 and 75.

\_\_ out of 5



## Quiz 4



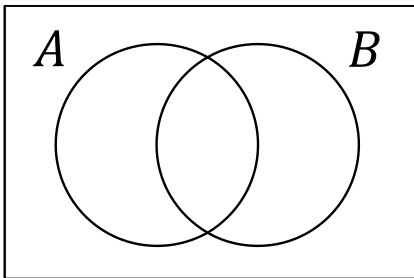
1)  $9 \times 8$

2) 40% of \$80

3) Write 209,030 in words.

4) Shade  $A \cup B$ .

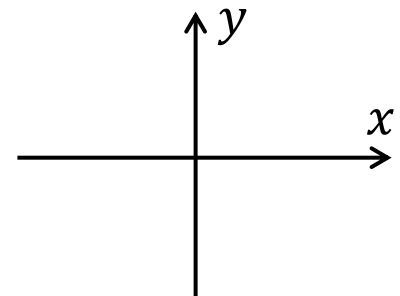
5)  $6 + 9 \div 3$

6) What type of angle is the angle  $270^\circ$ ? $E$ 

7) The range of 9, 0, 4, 2, 12, 7

8)  $-5 + -2$

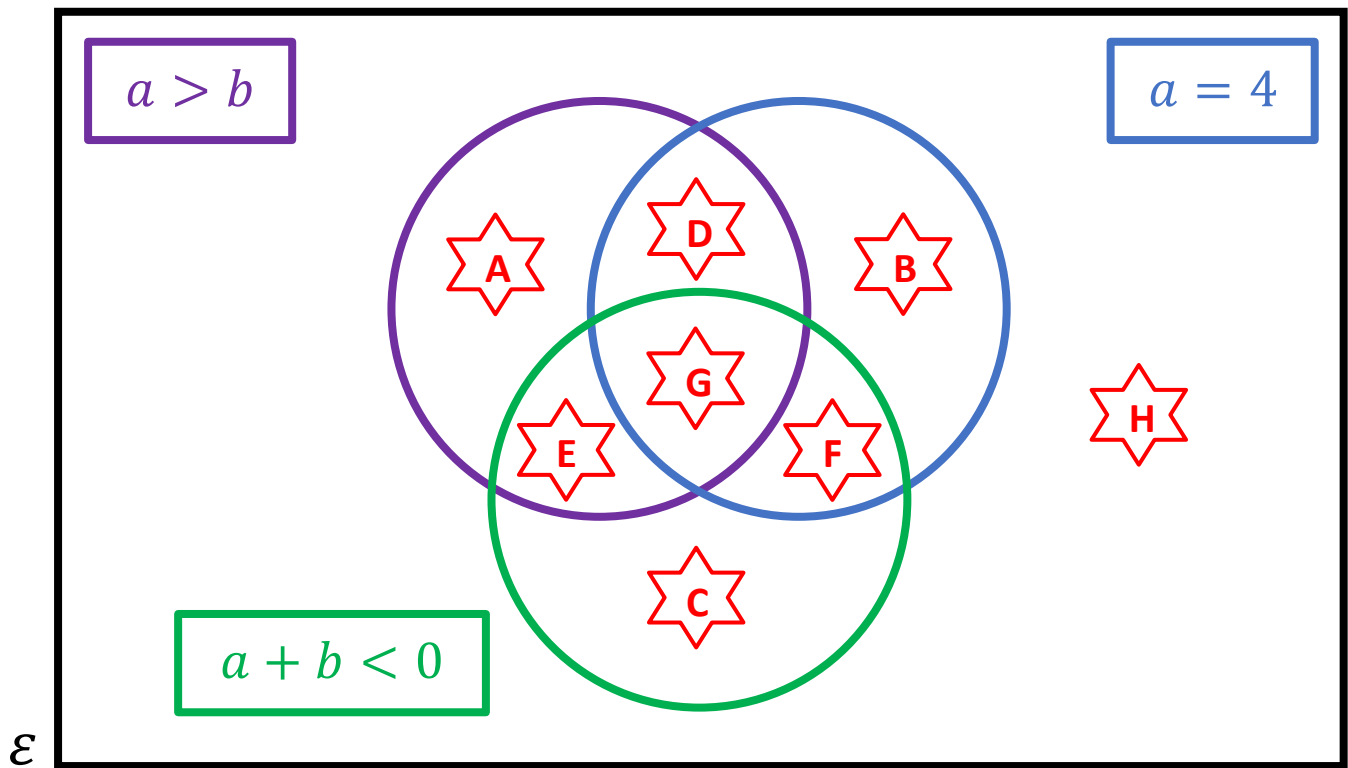
9) Label the quadrants.



\_\_\_ out of 9



# Venn Diagram Challenge 2



Write values for  $a$  and  $b$  that could fit into each region.  
 If you think a region is impossible to fill, explain why!




### Example 4



Arwyn has  $x$  cards.

Bryn has double the number of Arwyn's cards.

Cerys has 5 more cards than Arwyn.

All together, they have 33 cards.

How many cards does each person have?

$$\text{Arwyn} + \text{Bryn} + \text{Cerys} = 33$$

$$x + 2x + x + 5 = 33$$

$$4x + 5 = 33$$

[Collect like terms]

$$4x = 28$$

[-5]

$$x = 7$$

[÷4]

Arwyn: 7 cards

Bryn:  $7 \times 2 = 14$  cards

Cerys:  $7 + 5 = 12$  cards

(check:  $7 + 14 + 12 = 33 \checkmark$ )



## Exercise 4



Anita has  $x$  cards.

Brenda has double the number of Anita's cards.

Carwyn has 3 more cards than Anita.

All together, they have 27 cards.

How many cards does each person have?

A large grid of blue lines on a white background, enclosed in a dashed black border, intended for students to write their solution to the problem.

\_\_\_ out of 6



## Quiz 5



Solve the following equations.

1)  $x + 7 = 10$

2)  $x - 1 = 5$

3)  $3x = 15$

4)  $\frac{x}{2} = 8$

5)  $\frac{15}{x} = 3$

6)  $2x + 1 = 19$

7)  $3x - 2 = 19$

8)  $4x + 1 = 2x + 7$

9)  $5x - 2 = 2x + 7$

\_\_\_ out of 9



## Product of Prime Factors



1) Write  $x$  in index form.

2) Considering the numbers  $x$  and  $y$ , which one is a square number?

$$x = 2 \times 2 \times 3 \times 3 \times 5 \times 5$$

$$y = 2 \times 3 \times 3 \times 5 \times 5$$

3) What is the highest common factor of  $x$  and  $y$ ?

4) What is the lowest common multiple of  $x$  and  $y$ ?

— out of 5

## Evaluating the Workbook



## Notes



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Measuring

Shapes

Additional Tasks





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Right-Angled Triangle	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Factors of 48	19



## Quiz 1



1)  $3.4 \times 10$

2)  $548 \div 10$

3)  $0.782 \times 10$

4)  $8.6 \times 100$

5)  $4 \div 100$

6)  $7.4 \times 1000$

7)  $854 \div 1000$

8)  $0.2 \div 10$

9)  $0.0021 \times 100$

\_\_\_ out of 9



## Example 1



Solve the equation  $7x + 2 = 4x + 11$ .

$$7x + 2 = 4x + 11$$

$$7x = 4x + 11 - 2 \quad [\text{Jump the 2}]$$

$$7x = 4x + 9 \quad [\text{simplify}]$$

$$7x - 4x = 9 \quad [\text{Jump the 4x}]$$

$$3x = 9 \quad [\text{simplify}]$$

$$x = 3 \quad [\text{Divide by 3}]$$

BALANCING METHOD

$$7x + 2 = 4x + 11$$

$$7x = 4x + 9 \quad [\text{subtract 2}]$$

$$3x = 9 \quad [\text{subtract 4x}]$$

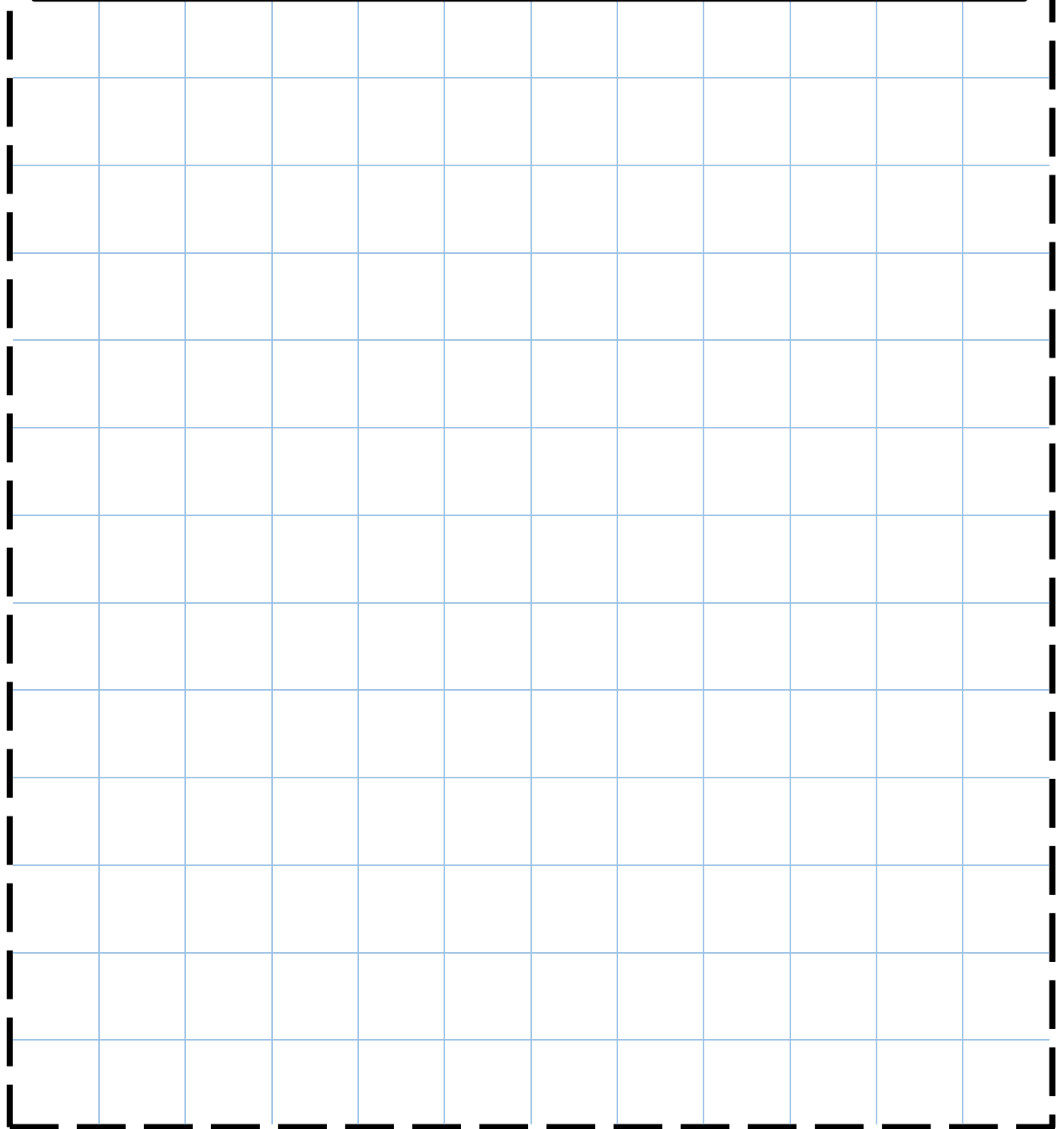
$$x = 3 \quad [\text{Divide by 3}]$$



## Exercise 1



Solve the equation  $5x + 7 = 3x + 35$ .



\_\_\_ out of 3

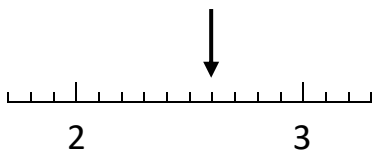


# Quiz 2

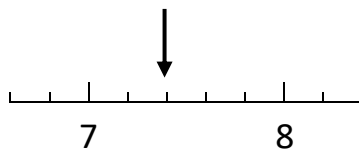


At which number is the arrow pointing towards?

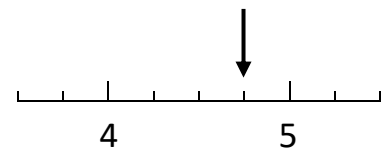
1)



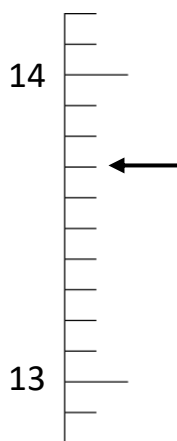
2)



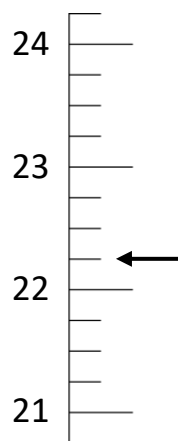
3)



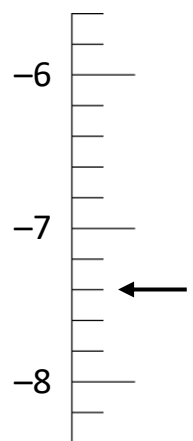
4)



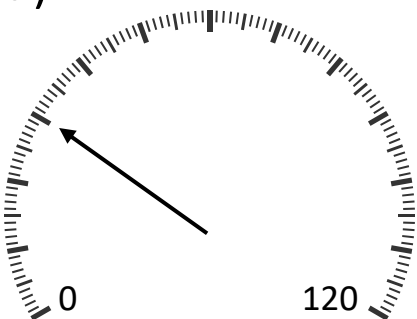
5)



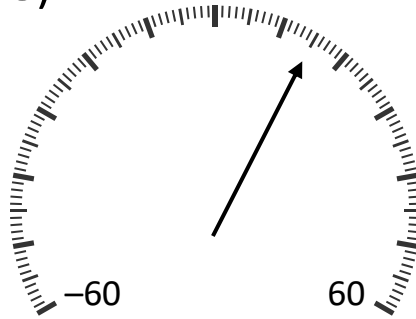
6)



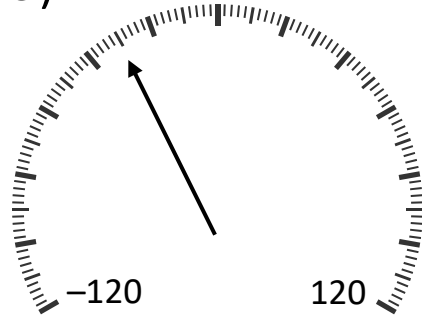
7)



8)



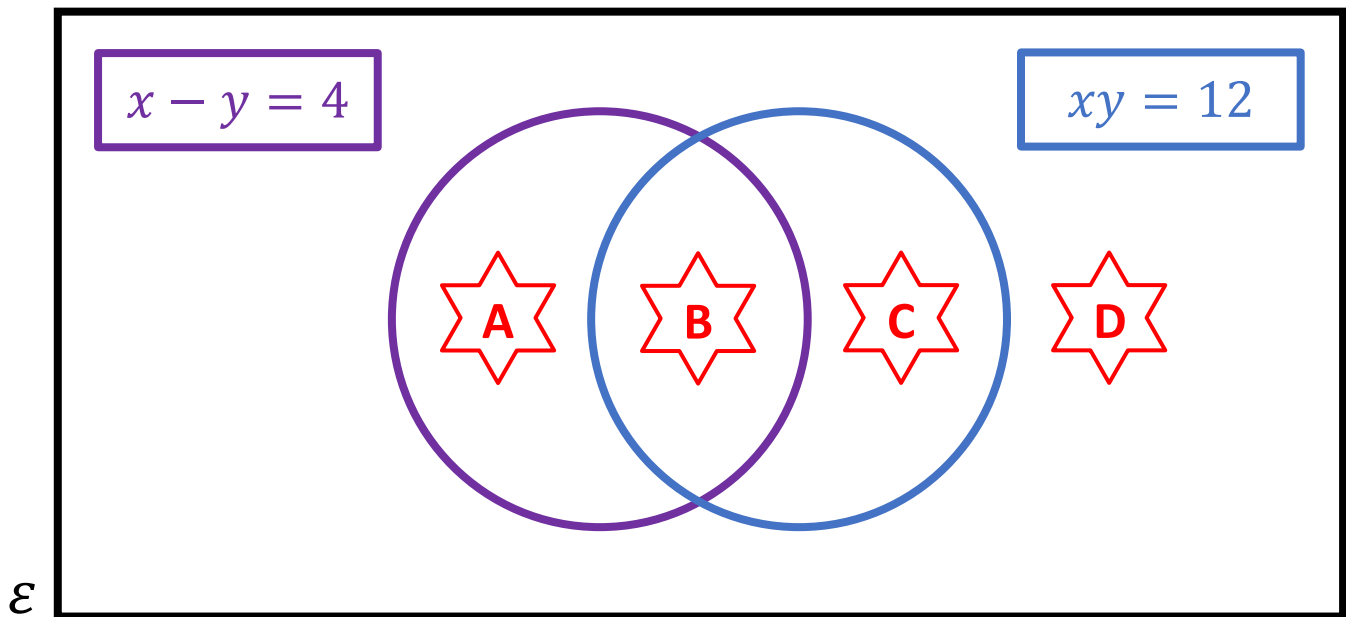
9)



\_\_\_ out of 9



Venn Diagram Challenge 1



Think of numbers  $x$  and  $y$  that could fit into each region.  
If you think a region is impossible to fill, explain why!









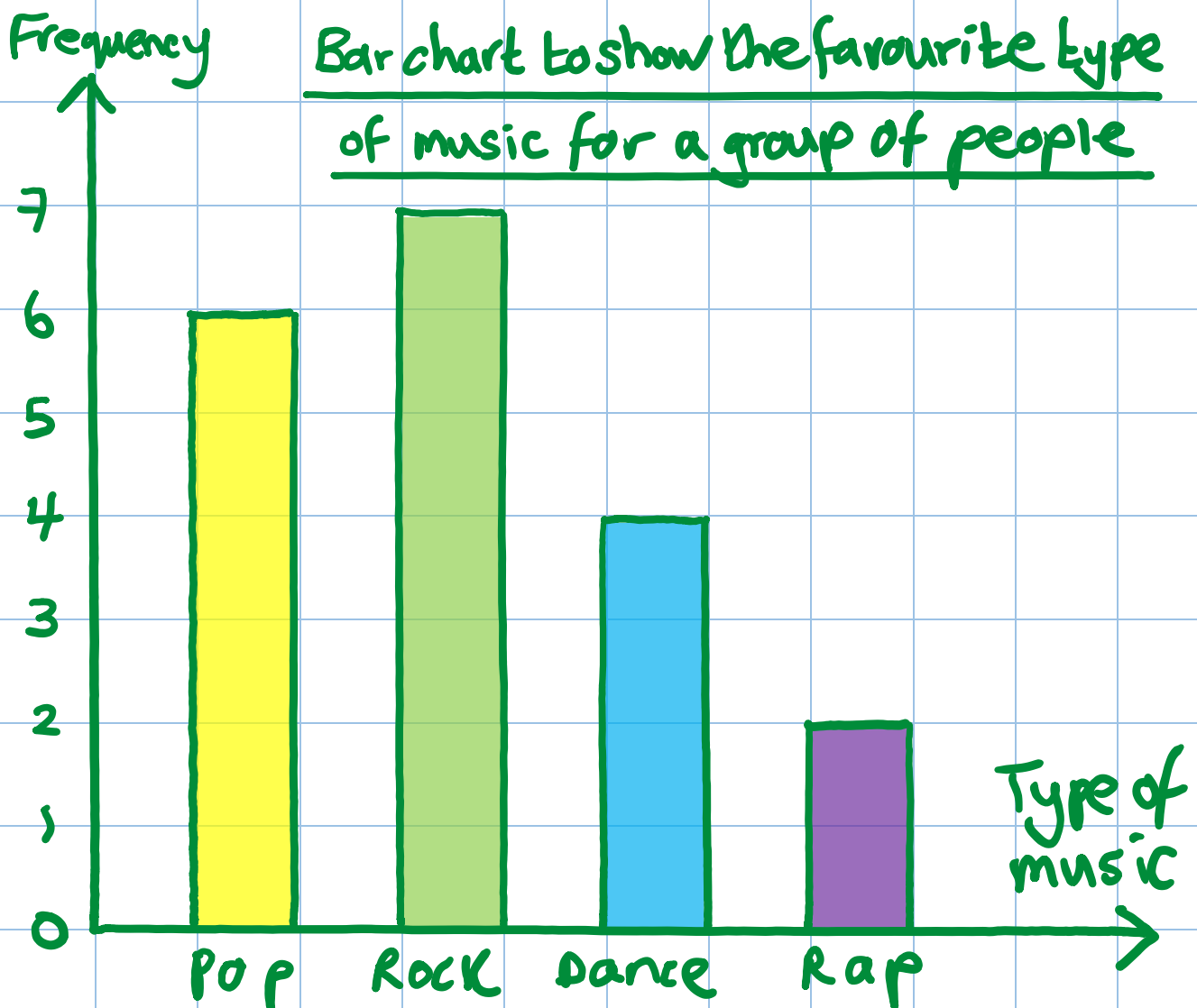


## Example 2



Draw a bar chart for the following data that shows the favourite type of music for a group of people.

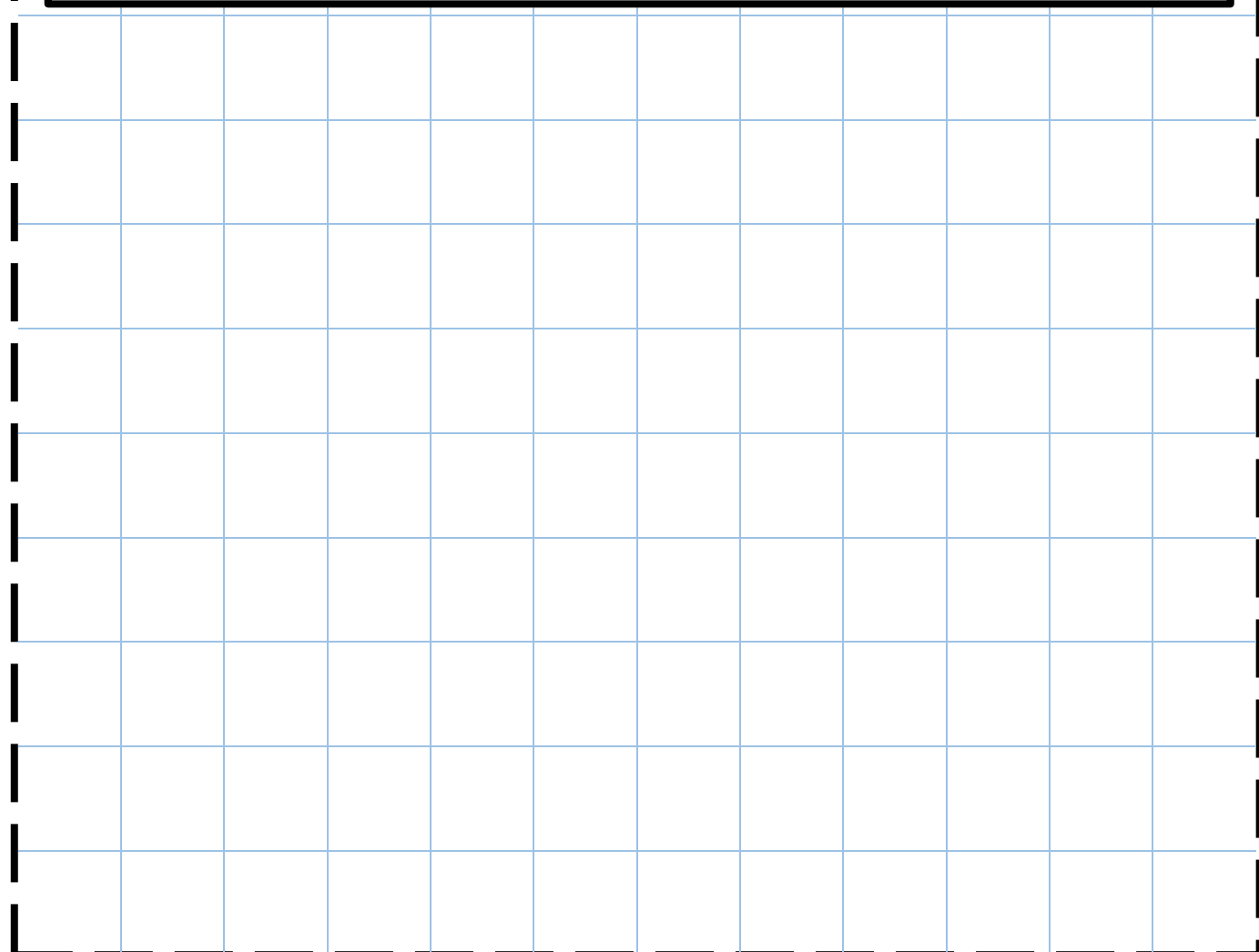
Type of music	Frequency
Pop	6
Rock	7
Dance	4
Rap	2



**Exercise 2**

Draw a bar chart for the following data that shows the favourite type of sport for a group of people.

Type of sport	Frequency
Rugby	5
Football	6
Tennis	3
Swimming	4



\_\_\_ out of 4

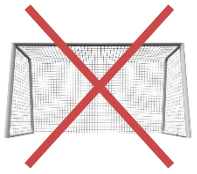


## Quiz 3

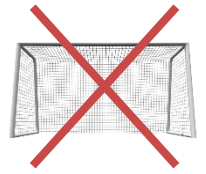


1) Simplify $2x + 4y + 6x - 3y$	2) Solve $4x = 28$	3) Which number comes next? 3, 6, 12, 24, 48, __
4) List all the factors of 30.	5) $\sqrt{9}$	6) Write 12 in index form.
7) In which quadrant is the co-ordinate (7, -2)?	8) $9 + -6$	9) 20% of £40.

\_\_\_ out of 9

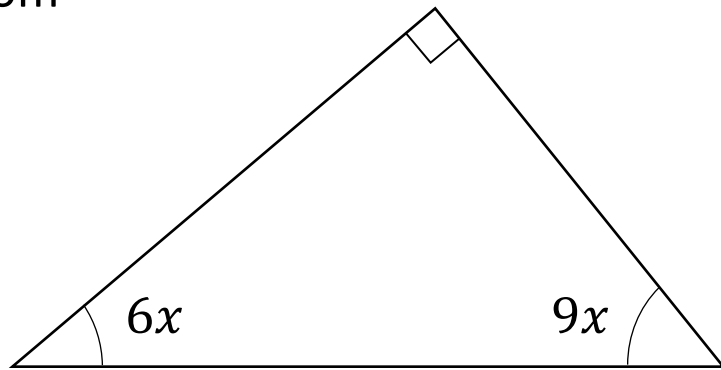


## The Right-Angled Triangle



What can you find from this information?

(The diagram is not drawn to scale.)





### Example 3



Without a calculator, calculate 84% of £148.

10%  $£148 \div 10 = £14.80$   
 1%  $£14.80 \div 10 = £1.48$

80%

$$\begin{array}{r} 14.80 \\ \times 8 \\ \hline 118.40 \\ \hline 36 \end{array}$$

4%

$$\begin{array}{r} 1.48 \\ \times 4 \\ \hline 5.92 \\ \hline 13 \end{array}$$

84%

$$\begin{array}{r} 118.40 \\ + 5.92 \\ \hline £ 124.32 \\ \hline 11 \end{array}$$





## Quiz 4

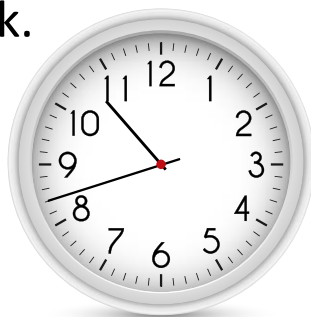


1) Circle the prime numbers.

11 12 13 14

15 16 17 18

2) Write the time in the 12-hour clock.



a.m.

3)  $10^3$

4) What type of angle is the angle  $190^\circ$ ?

5) Draw a horizontal line.

6) How would the column vector  $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$  move a shape?

7) Calculating 20% of a number is the same as dividing by \_\_\_\_\_.

8) Circle each multiple of 4.

9) The mean of 9, 7, 8, 5, 6

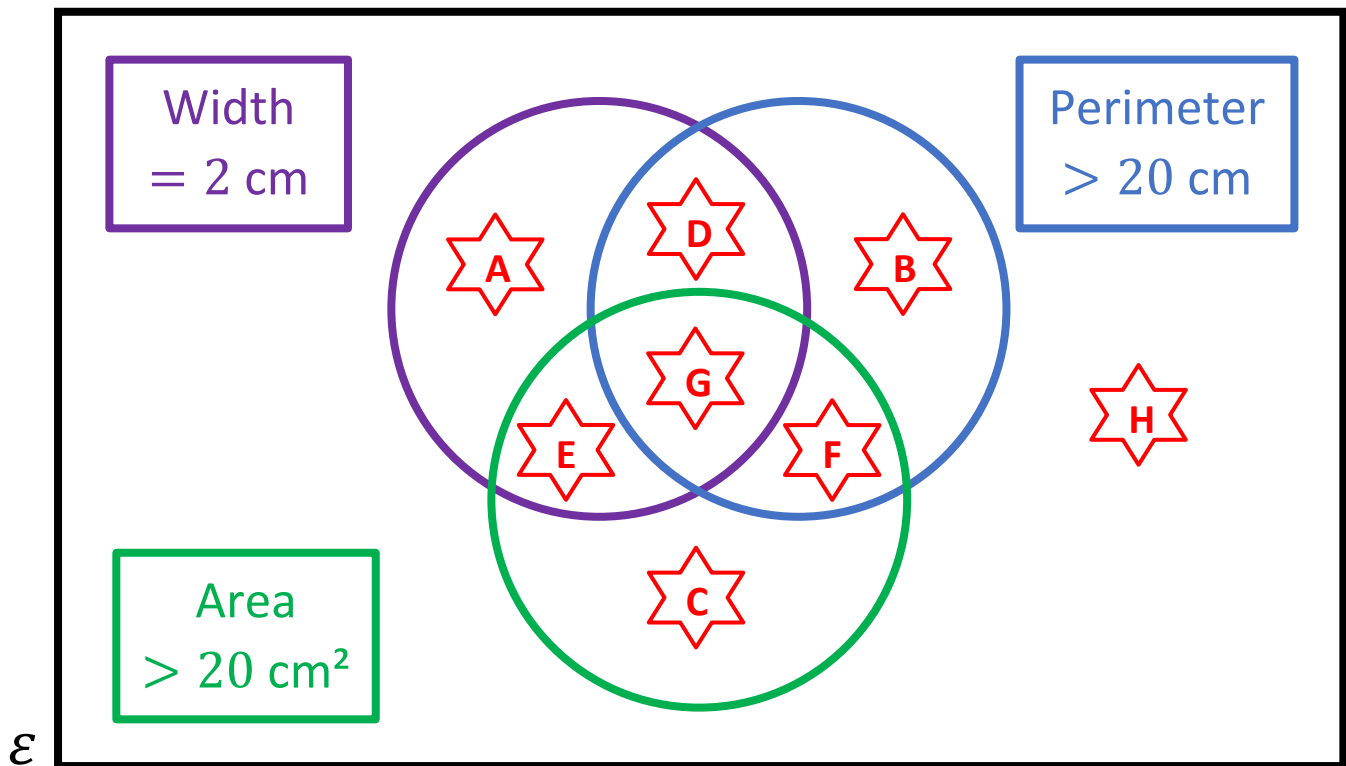
18 20 22 24

48 50 52 54

\_\_\_ out of 9



# Venn Diagram Challenge 2



Write the dimensions of a rectangle that could fit into each region. If you think a region is impossible to fill, explain why!

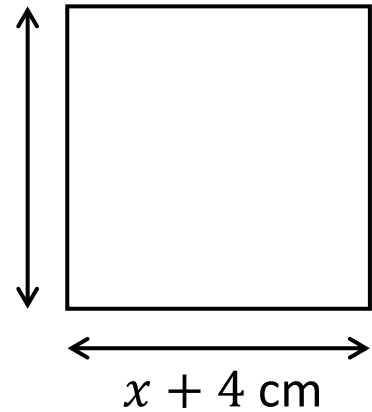



### Example 4



What is the area of this square?

$$3x - 2 \text{ cm}$$



The length and width of the square are equal.

$$3x - 2 = x + 4$$

$$3x = x + 6$$

[Add 2]

$$2x = 6$$

[Subtract  $x$ ]

$$x = 3$$

[Divide by 2]

The length of the square is  $x + 4 = 3 + 4 = 7 \text{ cm}$

The area of the square is  $7 \times 7 = \underline{49 \text{ cm}^2}$

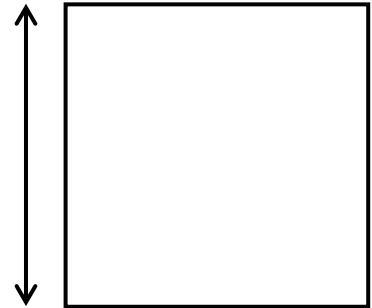


## Exercise 4



What is the area  
of this square?

$$4x - 7 \text{ cm}$$



$$x + 5 \text{ cm}$$

\_\_\_ out of 5

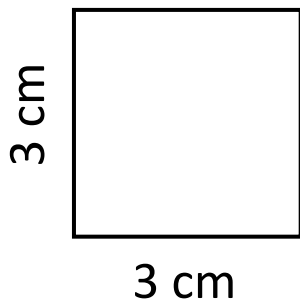


## Quiz 5

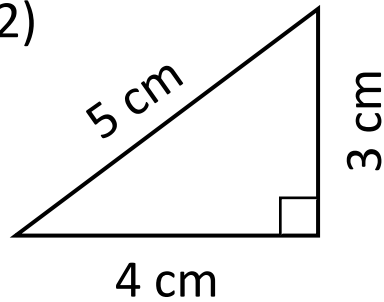


Calculate the area of the following shapes.

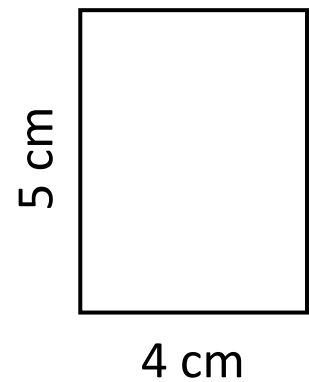
1)



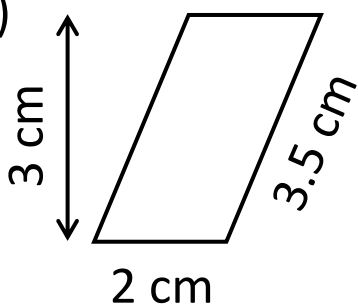
2)



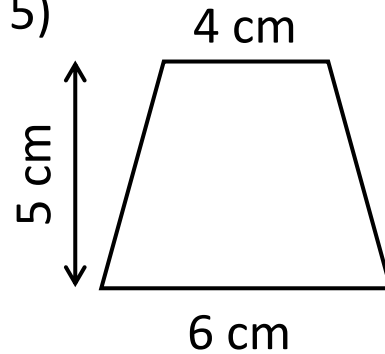
3)



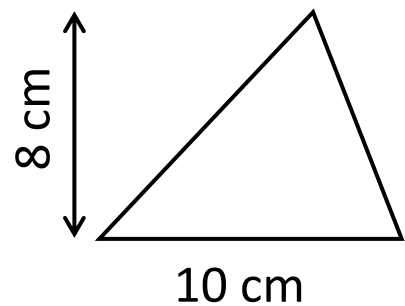
4)



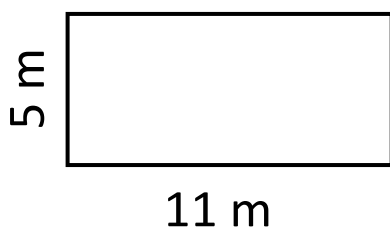
5)



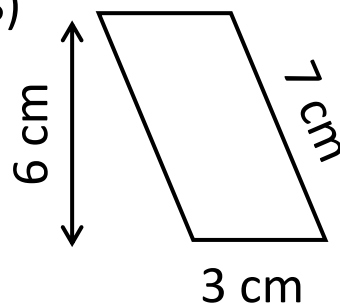
6)



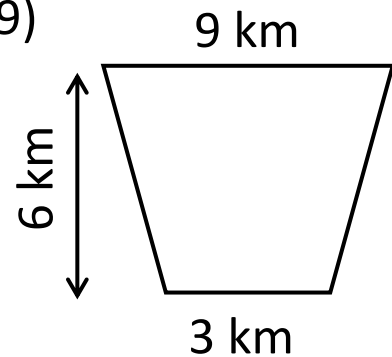
7)



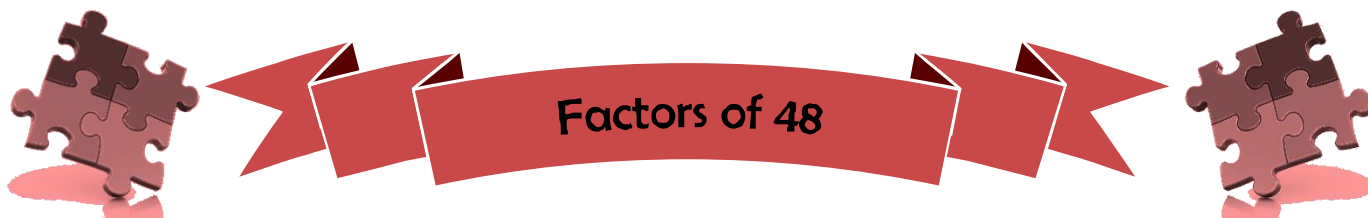
8)



9)



\_\_\_ out of 9



1) List all the factors of 48.

2) List three factors of 48 that sum to 48.

48

3) A rectangle has area  $48 \text{ cm}^2$ . The width of the rectangle is 8 cm more than its length. What are the dimensions of the rectangle?

4) A rectangle has area  $48 \text{ cm}^2$ . The rectangle's perimeter is 38 cm. What are the dimensions of the rectangle?

\_\_\_ out of 5

## Evaluating the Workbook



## Notes



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# Data Handling and

# Statistics 2

## Additional Tasks





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Chapel and the Café	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
The Parallelogram	19



## Quiz 1



$4 \times 2 =$

$3 \times 5 =$

$6 \times 10 =$

$1 \times 7 =$

$8 \times 3 =$

$7 \times 3 =$

$6 \times 8 =$

$7 \times 0 =$

$9 \times 2 =$

$3 \times 8 =$

$10 \times 3 =$

$11 \times 8 =$

$12 \times 3 =$

$7 \times 8 =$

$2 \times 15 =$

$3 \times 6 =$

$4 \times 9 =$

$9 \times 8 =$

$12 \times 4 =$

$6 \times 9 =$

$1 \times 15 =$

$5 \times 5 =$

$9 \times 5 =$

$8 \times 8 =$

$6 \times 0 =$

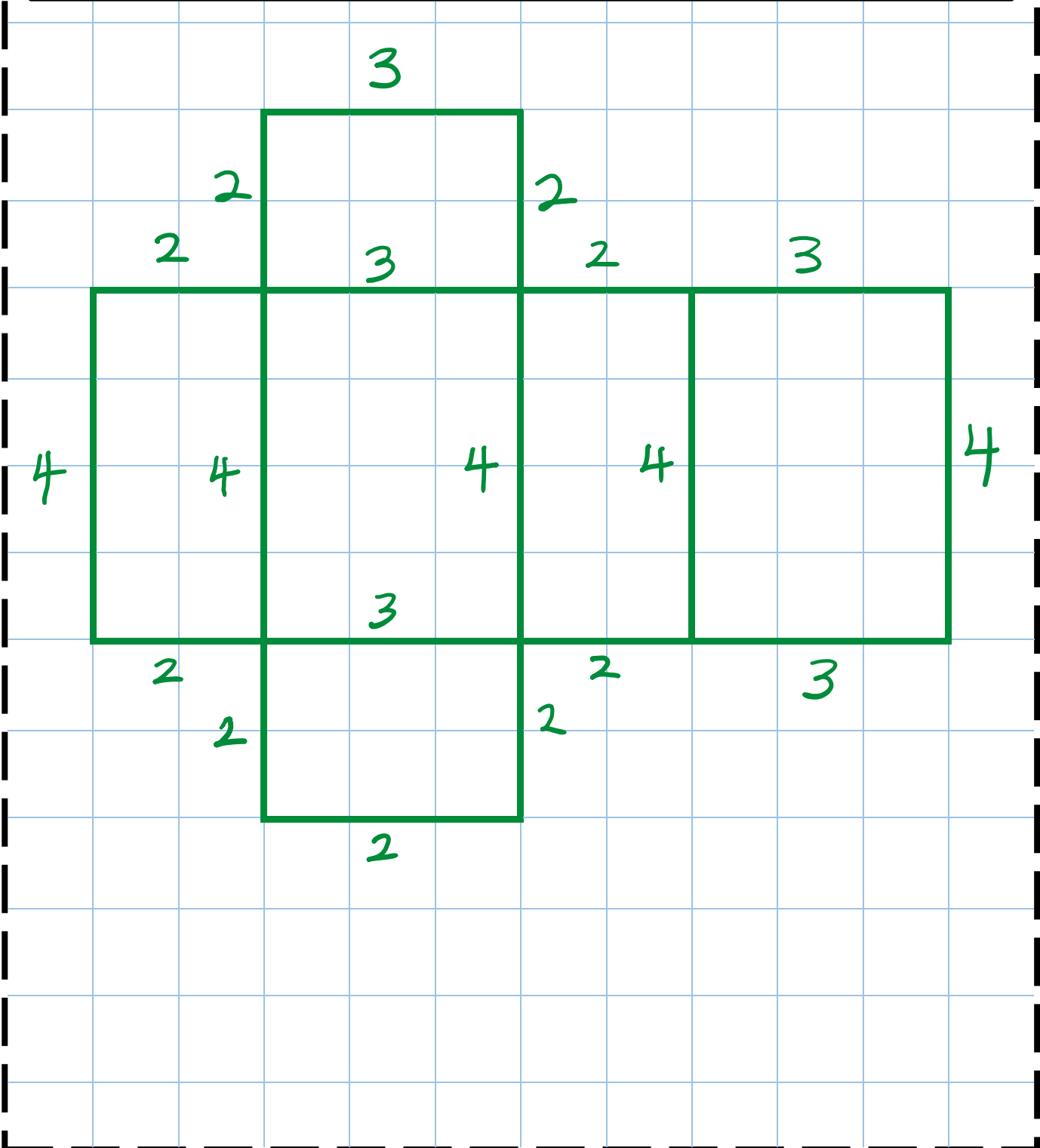
\_\_\_ out of 25



Example 1



Draw a net for a cuboid that measures 2 units by 3 units by 4 units.

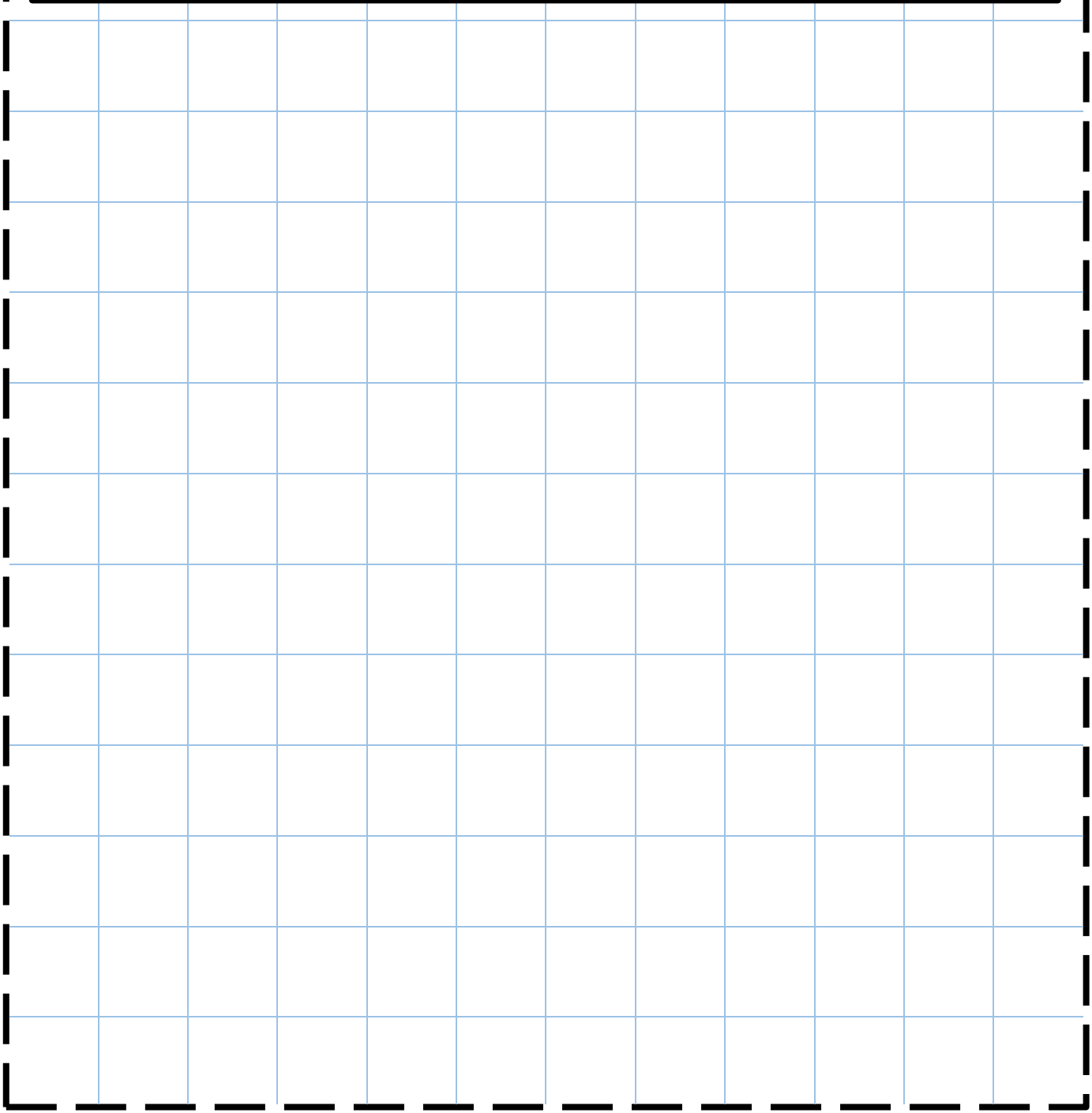




# Exercise 1



Draw a net for a cuboid that measures 1 unit by 3 units by 5 units.





## Quiz 2

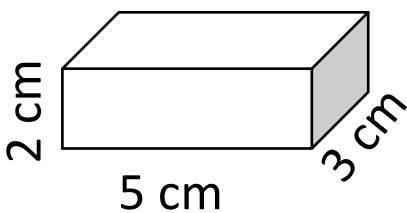


1)  $5 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

2)  $\sqrt{49}$

3) Solve  
 $x - 3 = 12$

4) What is the volume of the cuboid?

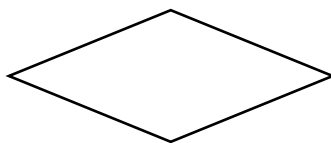


5) List all the factors of 10.

6)  $4.2 + 6.7$

7) Write the time 4:26 pm in the 24-hour clock.

8) What is the name of the shape?

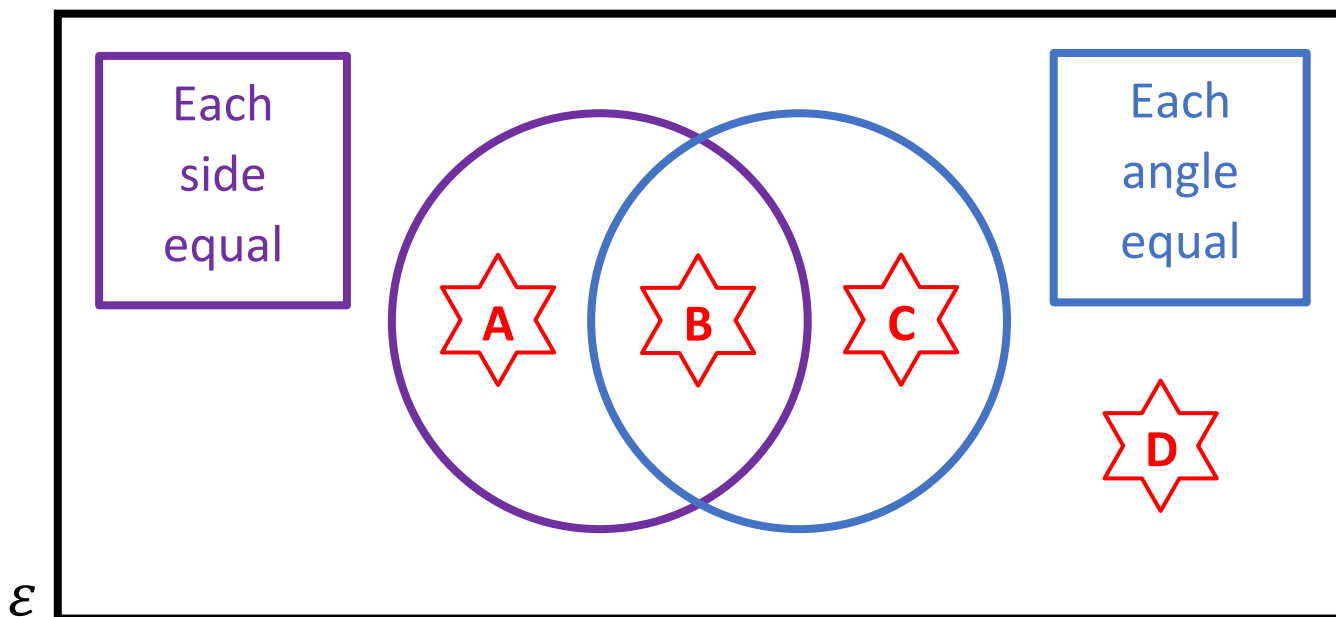


9) Simplify  
 $4a + 3b - a + 2b$

     out of 9



# Venn Diagram Challenge 1



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







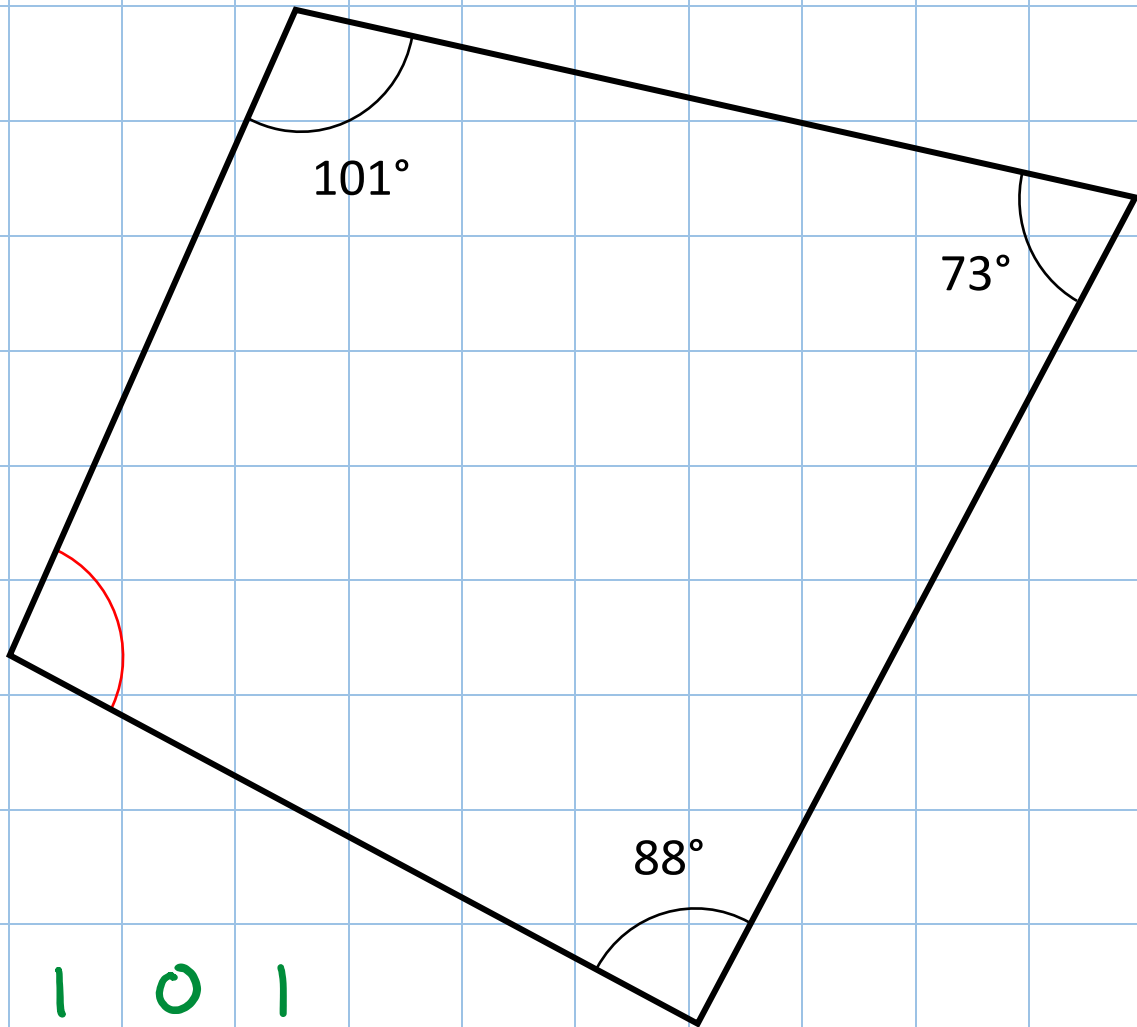




Example 2



Calculate the size of the red angle in the quadrilateral.



$$\begin{array}{r}
 101 \\
 + 88 \\
 \hline
 189 \\
 \hline
 189
 \end{array}$$

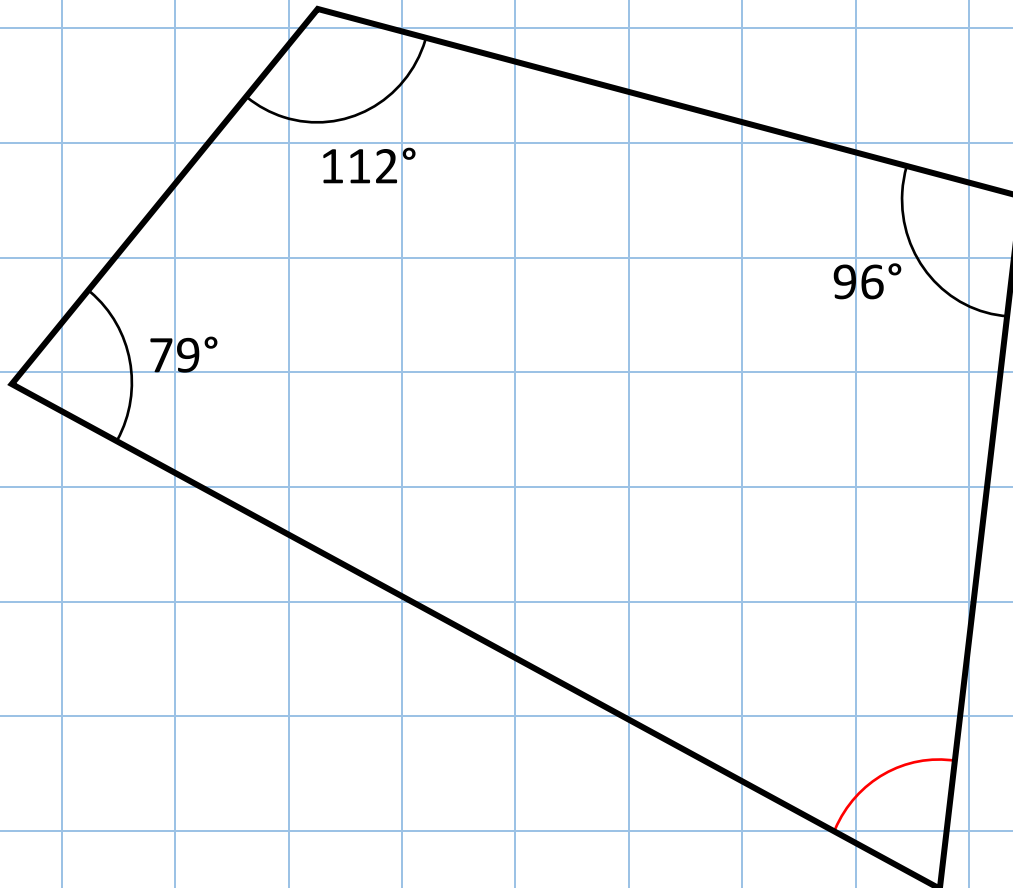
$$\begin{array}{r}
 360 \\
 - 189 \\
 \hline
 171 \\
 \hline
 171
 \end{array}$$



## Exercise 2



Calculate the size of the **red** angle in the quadrilateral.



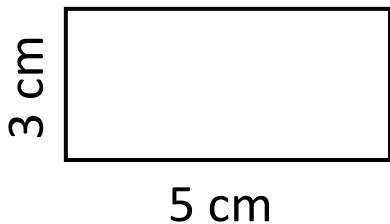
\_\_\_ out of 2



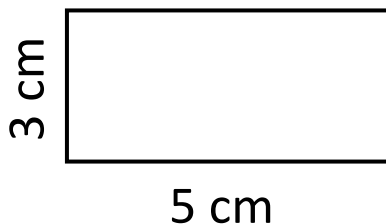
## Quiz 3



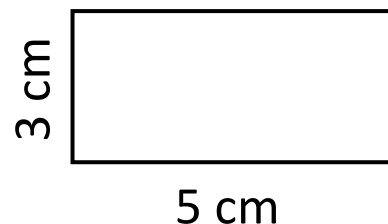
1) What is the name of the shape?



2) What is the perimeter of the shape?



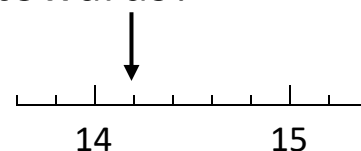
3) What is the area of the shape?



4) Solve the equation  
 $2x + 1 = 23$

5)  $\sqrt[3]{8}$

6) At which number is the arrow pointing towards?

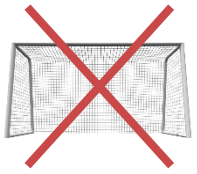


7)  $8 \times 12$

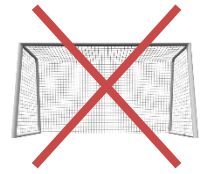
8) How many edges does an octagon have?

9) How many days are in August?

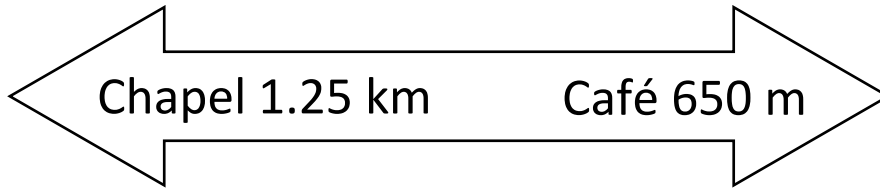
\_\_\_ out of 9



# The Chapel and the Café



Nia walks along a public footpath.  
She sees the following sign.



What can you calculate from this information?

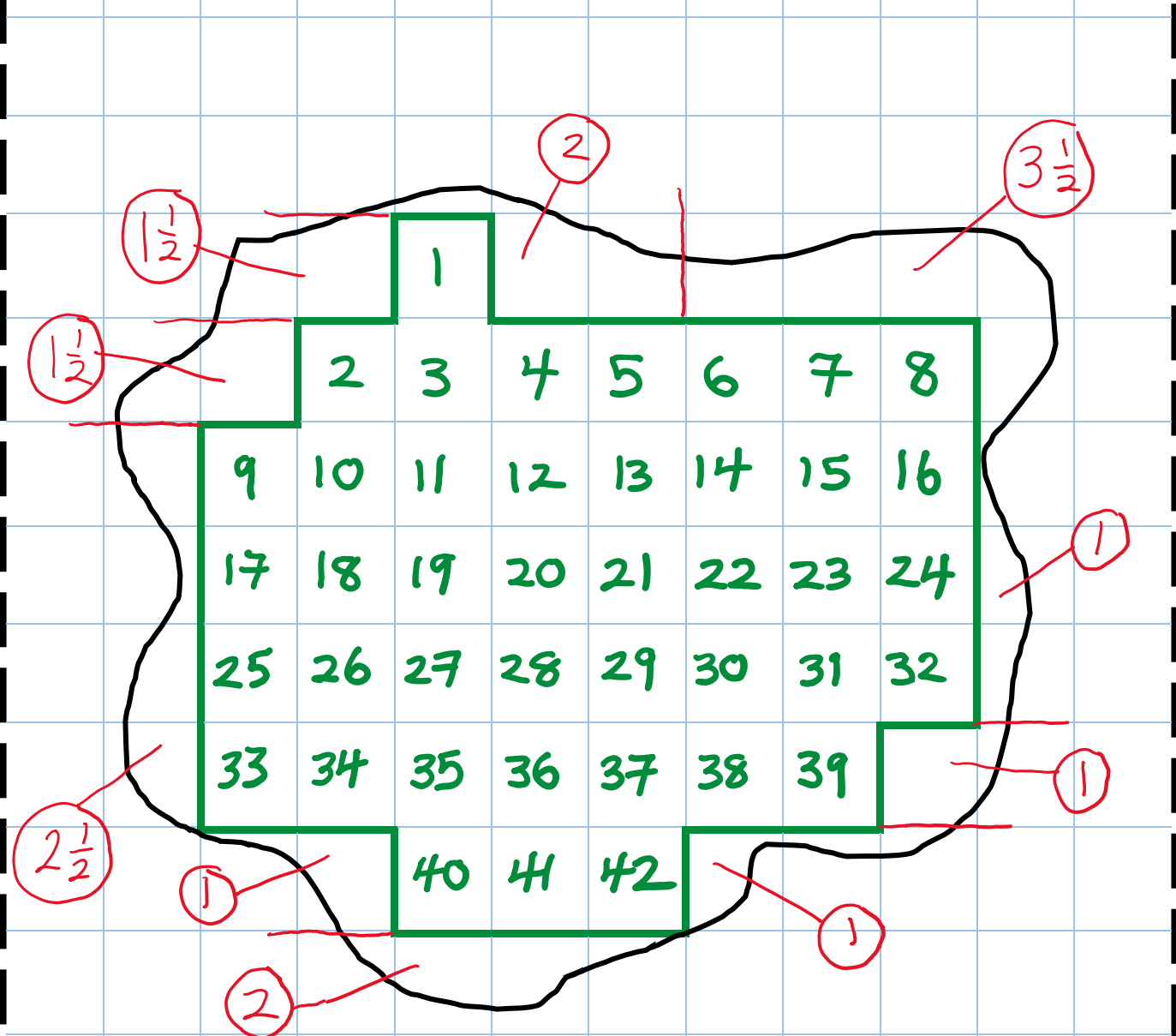
A large grid area for writing the answer, bounded by a dashed line.



Example 3



Find, in square units, an estimate for the area of the shape below.



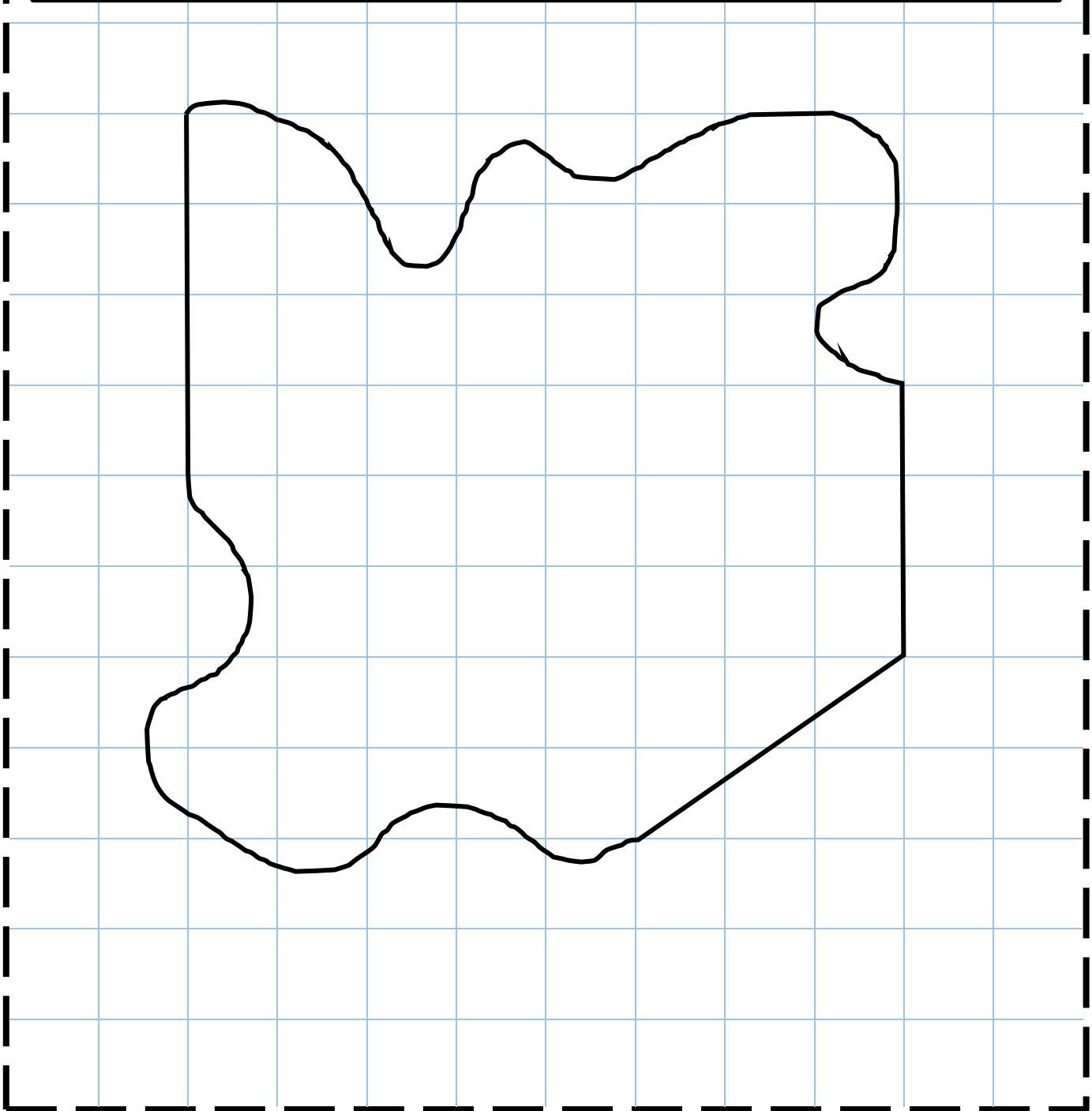
Whole Squares 42. Pieces 17.  
 $42 + 17 = \underline{59}$  square units



# Exercise 3



Find, in square units, an estimate for the area of the shape below.



\_\_\_ out of 4



## Quiz 4



1) Write 3900 in words.

2) Write half a million in figures.

3)  $5^3$

4) Circle all the multiples of 3.

87 94 105

245 503 986

5) What type of angle is the angle  $360^\circ$ ?

6) 25% of 200 cm

7) 1 inch  $\approx$   
\_\_\_\_\_ cm

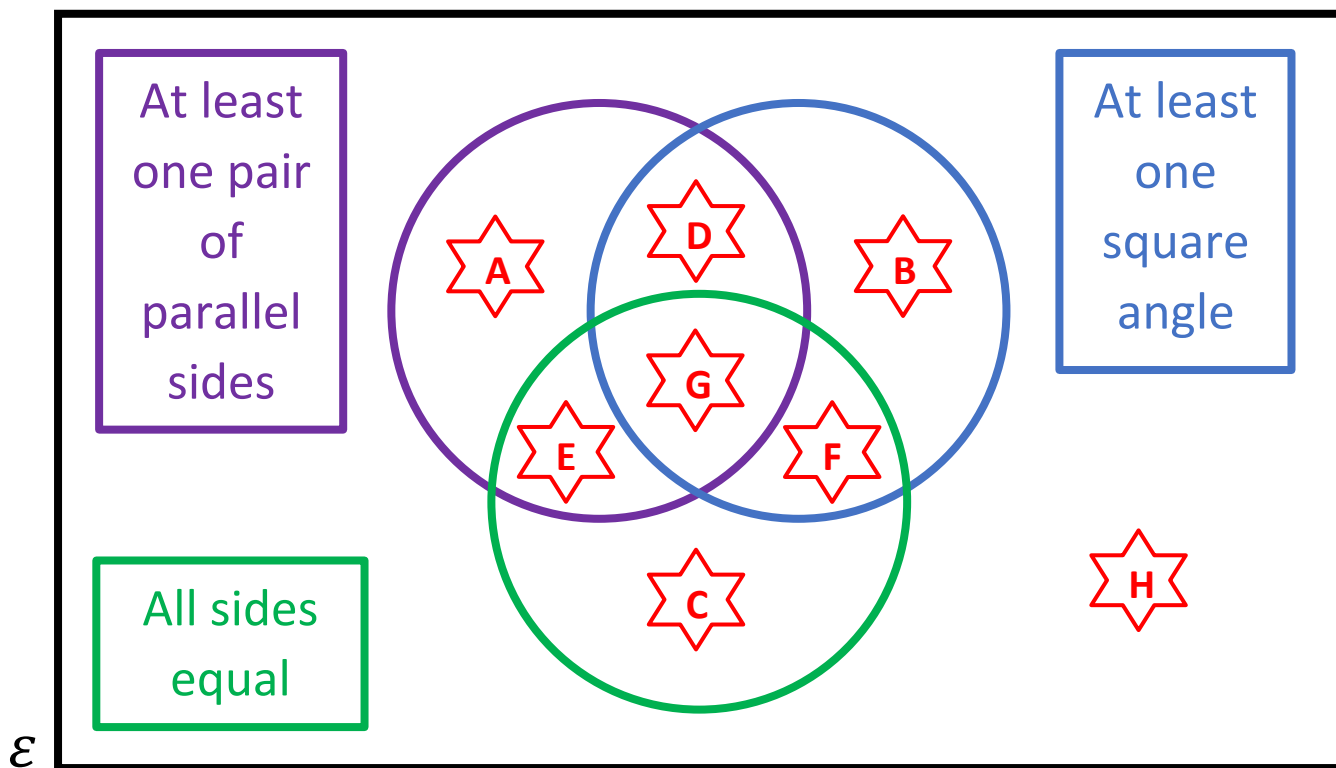
8) 1 yard  $\approx$   
\_\_\_\_\_ m

9) 1 mile  $\approx$   
\_\_\_\_\_ km

\_\_\_\_ out of 9



# Venn Diagram Challenge 2



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















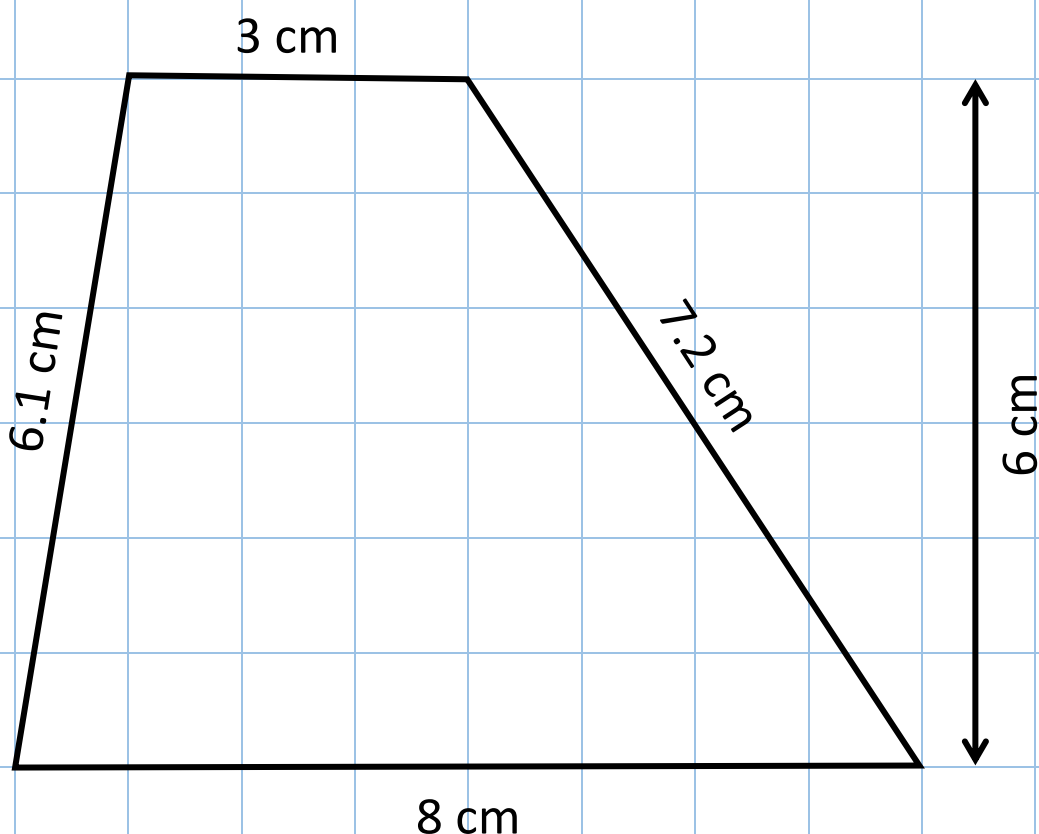




### Example 4



Calculate the perimeter and area of the trapezium.



Perimeter:

$$\begin{array}{r}
 3 \\
 8 \\
 7.2 \\
 + 6.1 \\
 \hline
 24.3 \text{ cm}
 \end{array}$$

Area:

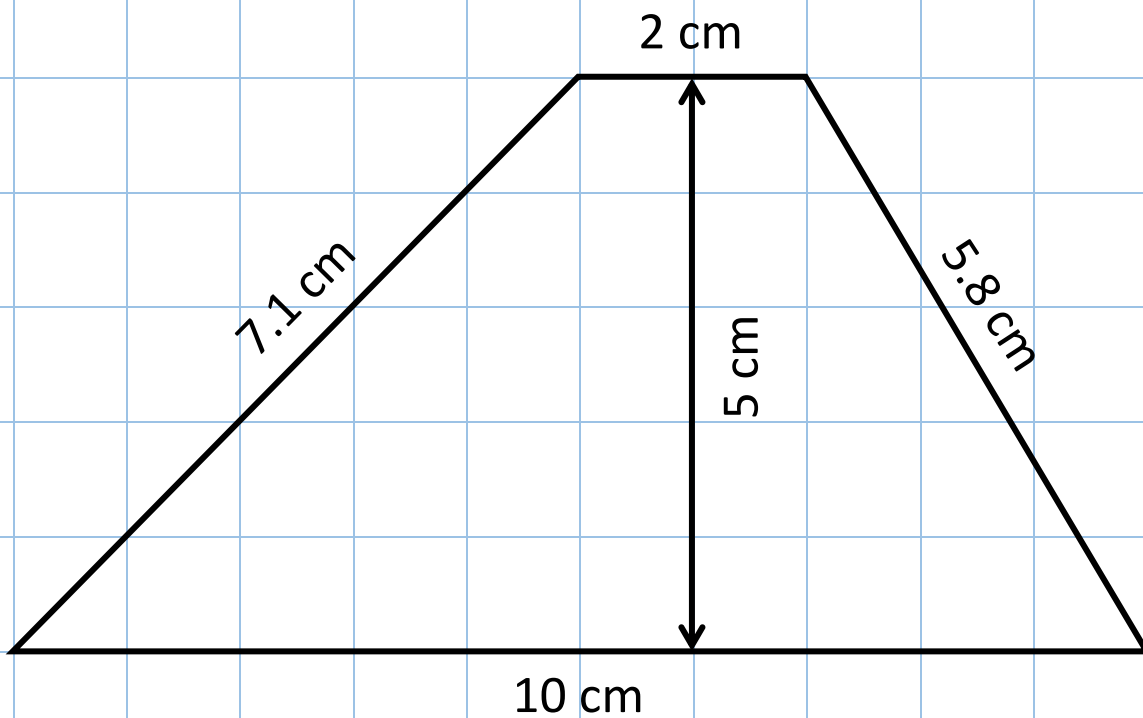
$$\begin{array}{r}
 8 + 3 = 11 \\
 11 \div 2 = 5.5 \\
 5.5 \times 6 = 33 \text{ cm}^2
 \end{array}$$



## Exercise 4



Calculate the perimeter and area of the trapezium.



\_\_\_ out of 5



## Quiz 5



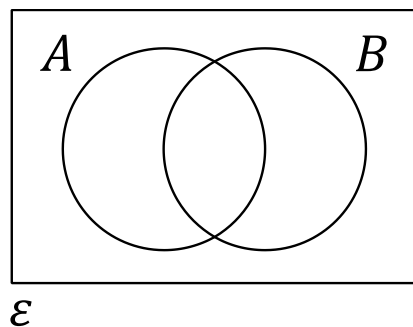
1) The mode of  
5, 2, 4, 3, 5, 4, 5

2) The range of  
5, 2, 4, 3, 5, 4, 5

3) The mean of  
5, 2, 4, 3, 5, 4, 5

4) Is 39 a prime  
number?

5) Shade in  $A'$ .



6) In which  
quadrant is the co-  
ordinate  $(-4, 5)$ ?

7) 20% of £15

8)  $2 \div 4$

9) Sketch a net for  
a cube.

\_\_\_ out of 9

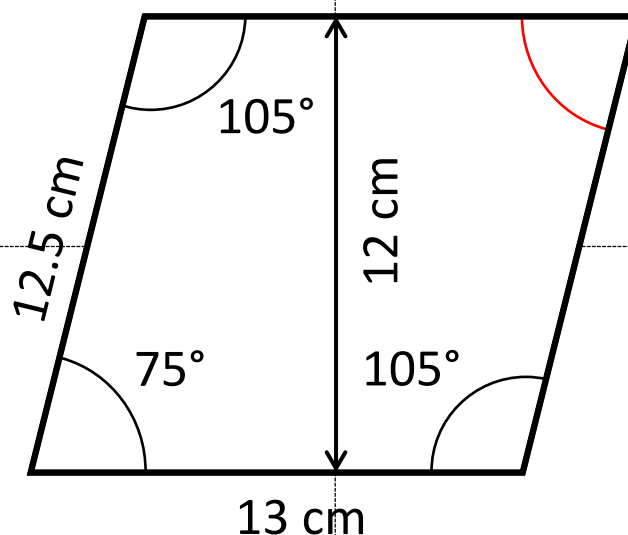


## The Parallelogram



1) Calculate the perimeter of the parallelogram.

2) Calculate the area of the parallelogram.



3) Calculate the size of the **red** angle.

4) The parallelogram is placed in a photocopier and enlarged to twice the size. What is the area of the new parallelogram?

\_\_\_ out of 5

## Evaluating the Workbook



## Notes



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The End of

Year 8

Additional Tasks





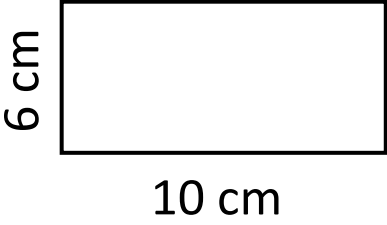
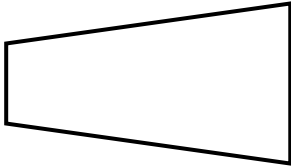
# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
Mobile Phones	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Quiz 6	19



## Quiz 1



1) $\sqrt{16}$	2) List all the factors of 9.	3) Write 18 in index form.
4) Simplify $8w + 7u - 2w + 4u$	5) Solve $\frac{x}{2} = 4$	6) Substitute $x = 4$ into the expression $3x - 2$
7) The total internal angles in any quadrilateral sum to _____°	8) What is the perimeter of the shape below? 	9) What is the name of the shape below? 

\_\_\_ out of 9



## Example 1



Draw a pictogram for the following data that shows a group of people's favourite colour. Use the key  $\square = 2$  people.

Colour	Frequency
Blue	8
Purple	4
Red	5
Pink	7

A pictogram showing a group of people's favourite colour

Blue  $\square \square \square \square$

Purple  $\square \square$

Red  $\square \square \triangle$

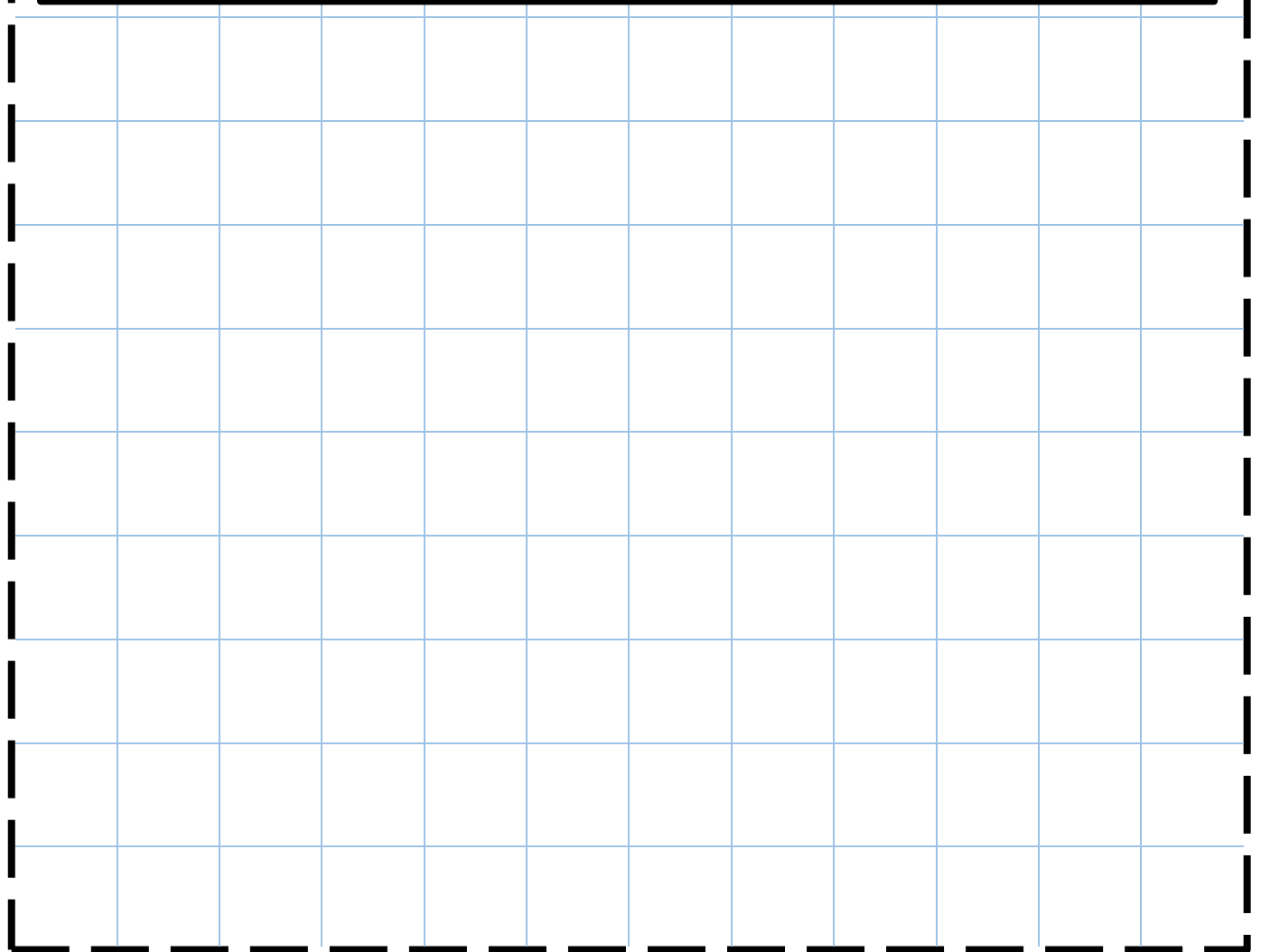
Pink  $\square \square \square \triangle$

Key:  $\square = 2$  people

**Exercise 1**

Draw a pictogram for the following data that shows a group of people's favourite colour. Use the key  $\oplus = 4$  people.

Colour	Frequency
Red	16
Blue	10
Green	5
Pink	15

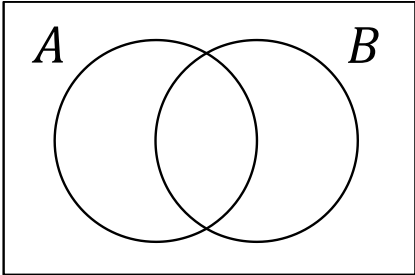


— out of 6



## Quiz 2

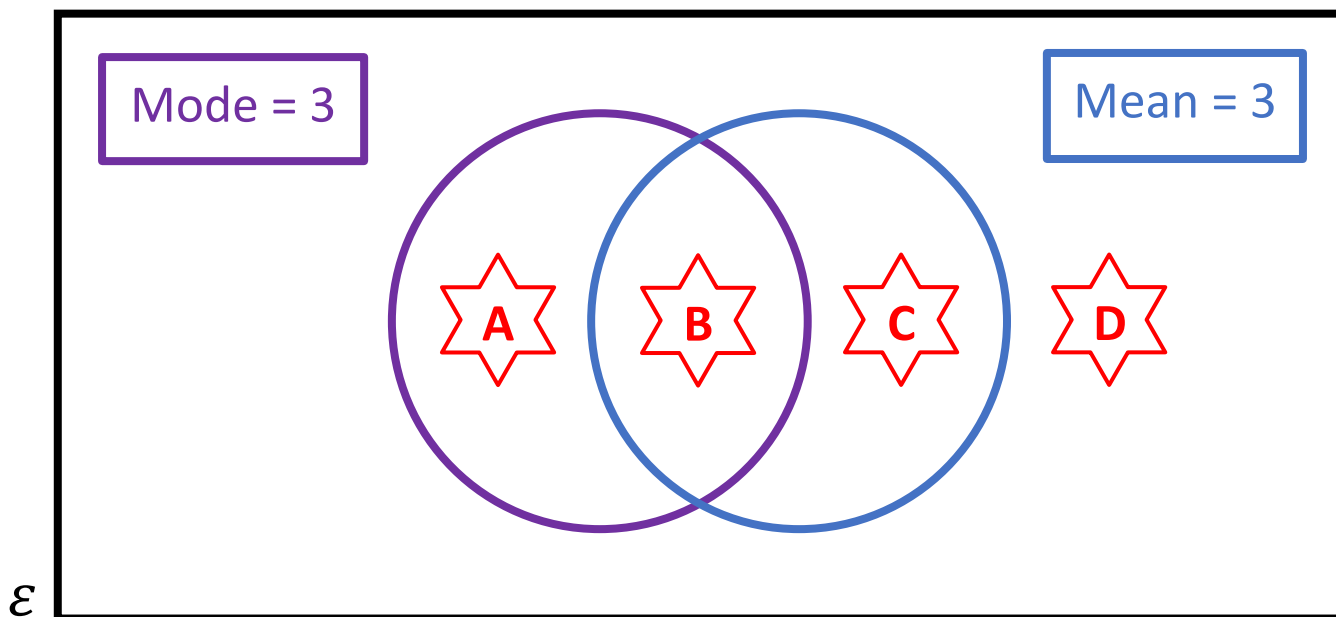


<p>1)</p> <p>2 kg = _____ g</p> <p>4 m = _____ cm</p> <p>3 litres = _____ ml</p> <p>3 cm = _____ mm</p> <p>4 cl = _____ ml</p>	<p>2) Name a quadrilateral that includes a reflex angle.</p>	<p>3) Is 17 a prime number?</p>
<p>4) Shade <math>A' \cap B</math>.</p>  <p><math>\varepsilon</math></p>	<p>5) The mode of 17, 11, 14, 13, 15</p>	<p>6) What is the probability that the next baby born is a girl?</p>
<p>7) How many vertices does a tetrahedron have?</p>	<p>8) How many edges does a cuboid have?</p>	<p>9) How many faces does a cylinder have?</p>

\_\_\_\_\_ out of 13



# Venn Diagram Challenge 1



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



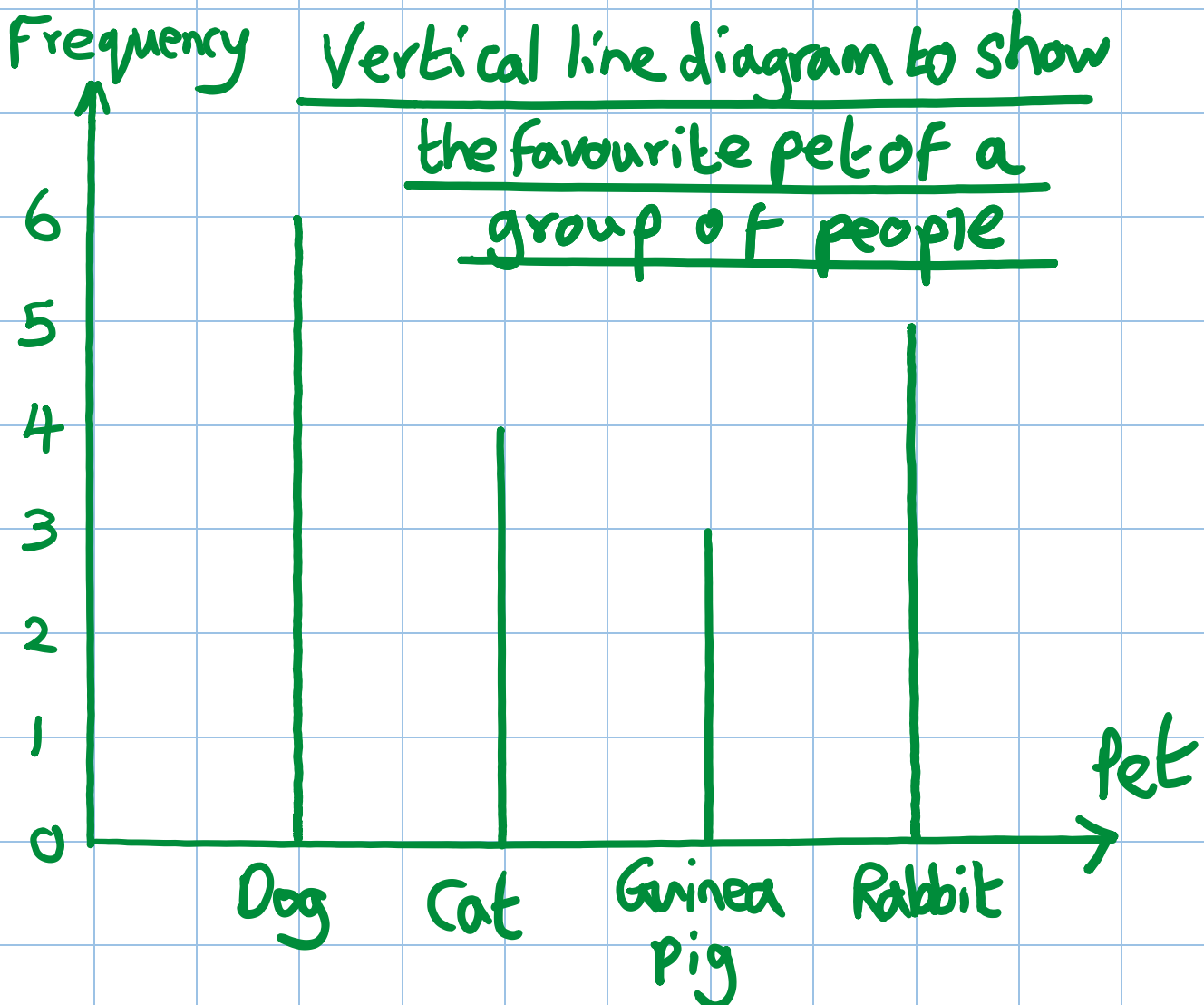


## Example 2



Draw a vertical line diagram for the following data that shows the favourite pet of a group of people.

Pet	Frequency
Dog	6
Cat	4
Guinea Pig	3
Rabbit	5



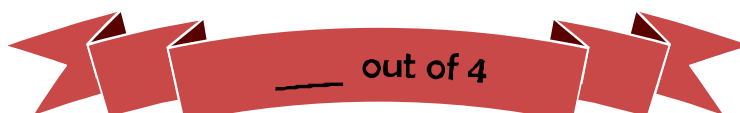
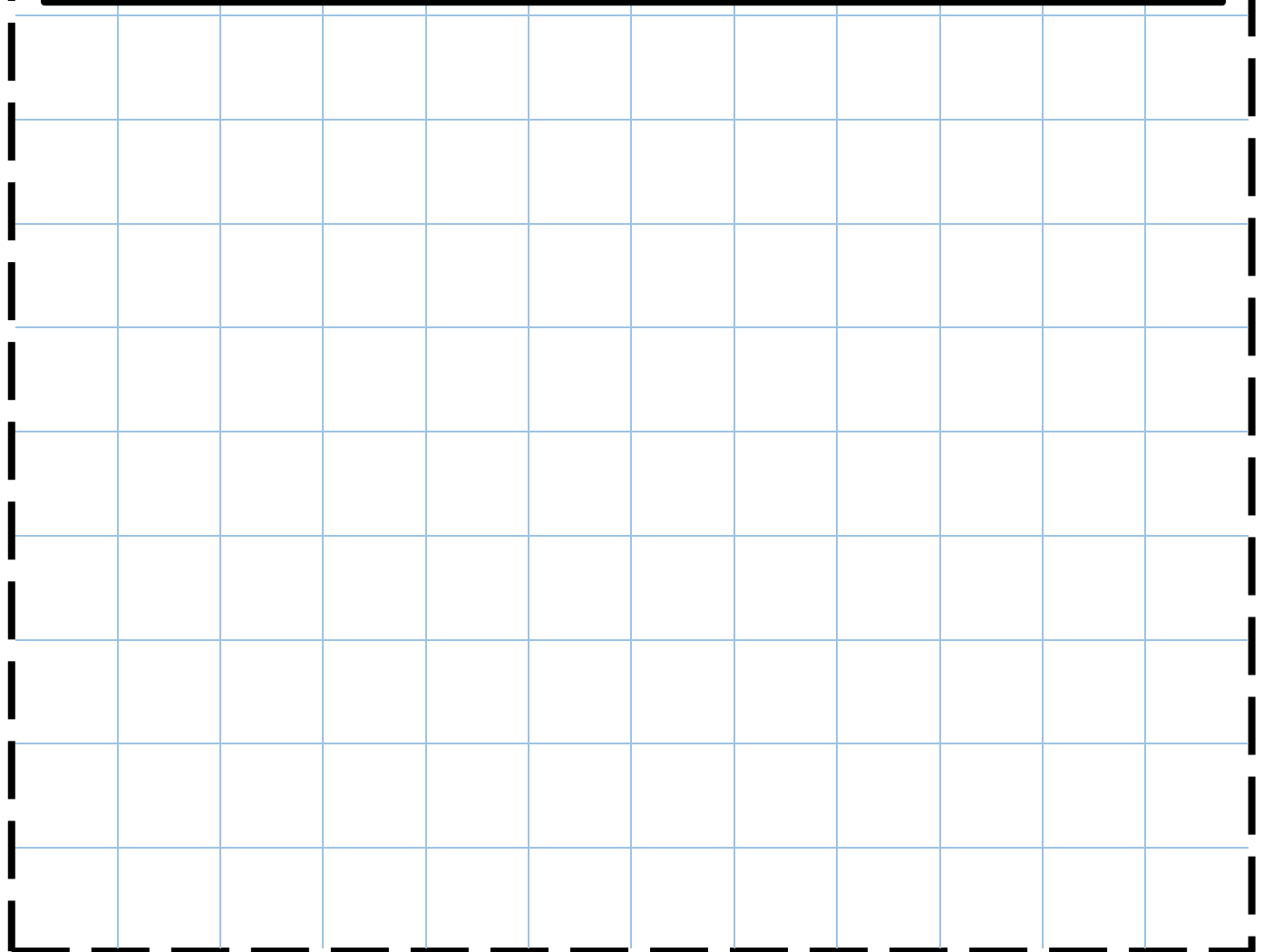


## Exercise 2



Draw a vertical line diagram for the following data that shows the favourite soft drink of a group of people.

Soft Drink	Frequency
Coca-cola	5
Orange juice	6
Ribena	4
Vimto	2



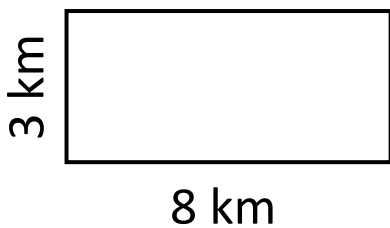
\_\_\_ out of 4



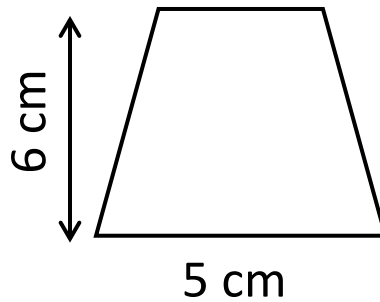
## Quiz 3



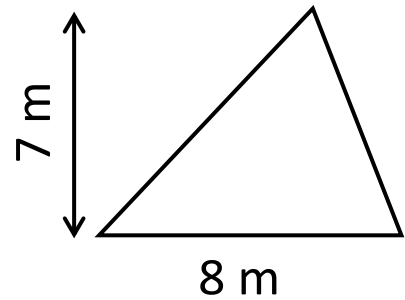
1) What is the area of the shape below?



2) What is the area of the shape below? 3 cm



3) What is the area of the shape below?



4)  $\sqrt[3]{125}$

5) Is the number  $5^2 \times 7^3 \times 11^4$  a square number?

6) 3 inches  $\approx$  \_\_\_\_\_ cm

7) Which word is used for a probability of 1?

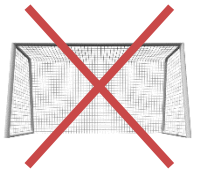
8) Solve the equation  $4x - 6 = 22$

9) Circle the prime numbers.

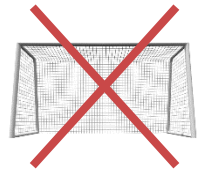
21   22   23   24

25   26   27   28

\_\_\_ out of 2



## Mobile Phones



Mr. Jones asked everybody in his registration class to record how many times they used their mobile phone last Saturday.

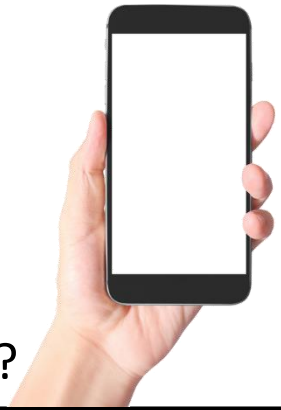
Here are the results for the boys:

8, 10, 8, 9, 7, 13, 8, 13, 14.

Here are the results for the girls:

6, 8, 9, 9, 9, 10, 14, 15.

What can you calculate from this information?





### Example 3



List all the factors of 72.

$$72 = 1 \times 72$$

$$\nearrow = 2 \times 36$$

A list of  
multiplication  
sums to  
give

$$= 3 \times 24$$

$$= 4 \times 18$$

$$= 6 \times 12$$

$$72 \rightarrow = 8 \times 9$$

$$\begin{array}{r} 24 \\ \hline 3 \overline{) 72} \\ 18 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ \hline 4 \overline{) 72} \\ 36 \\ \hline \end{array}$$

The factors of 72 are

1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72.





## Quiz 4



1) Solve the equation

$$3x = 18$$

2)  $\sqrt{64}$

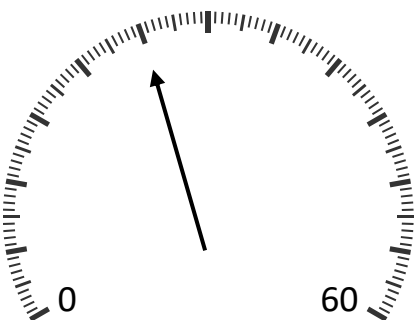
3) What is the formula for calculating the area of a parallelogram?

4) What is the first prime number after 31?

5) How many edges does a triangular prism have?

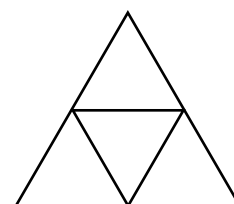
6) Substitute  $y = 6$  into the expression  $30 - 2y$ .

7) The arrow points towards...?



8) What is the volume of a cuboid measuring 2 cm by 2 cm by 3 cm?

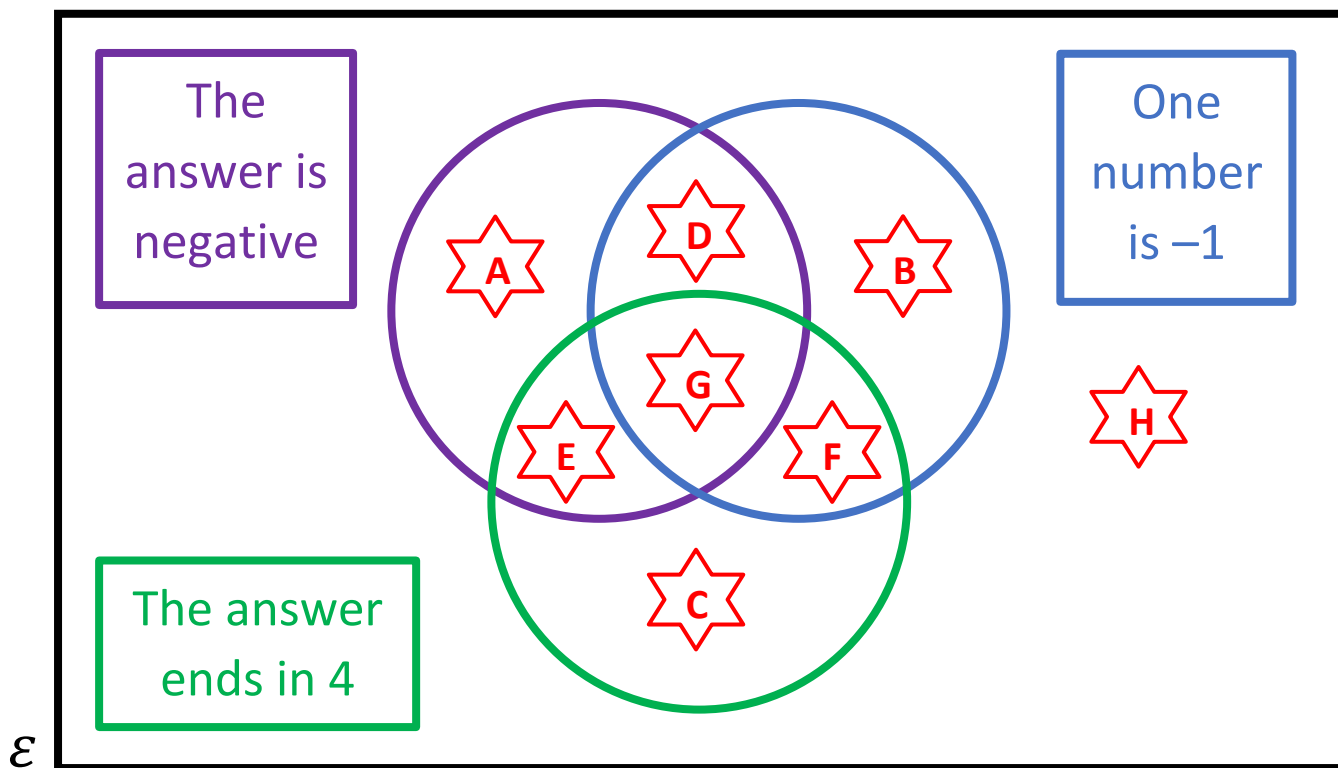
9) The following net folds to give which solid?



\_\_\_ out of 9



# Venn Diagram Challenge 2



Think of a **multiplication sum with two numbers** that could fit into each region. If you think a region is impossible to fill, explain why!

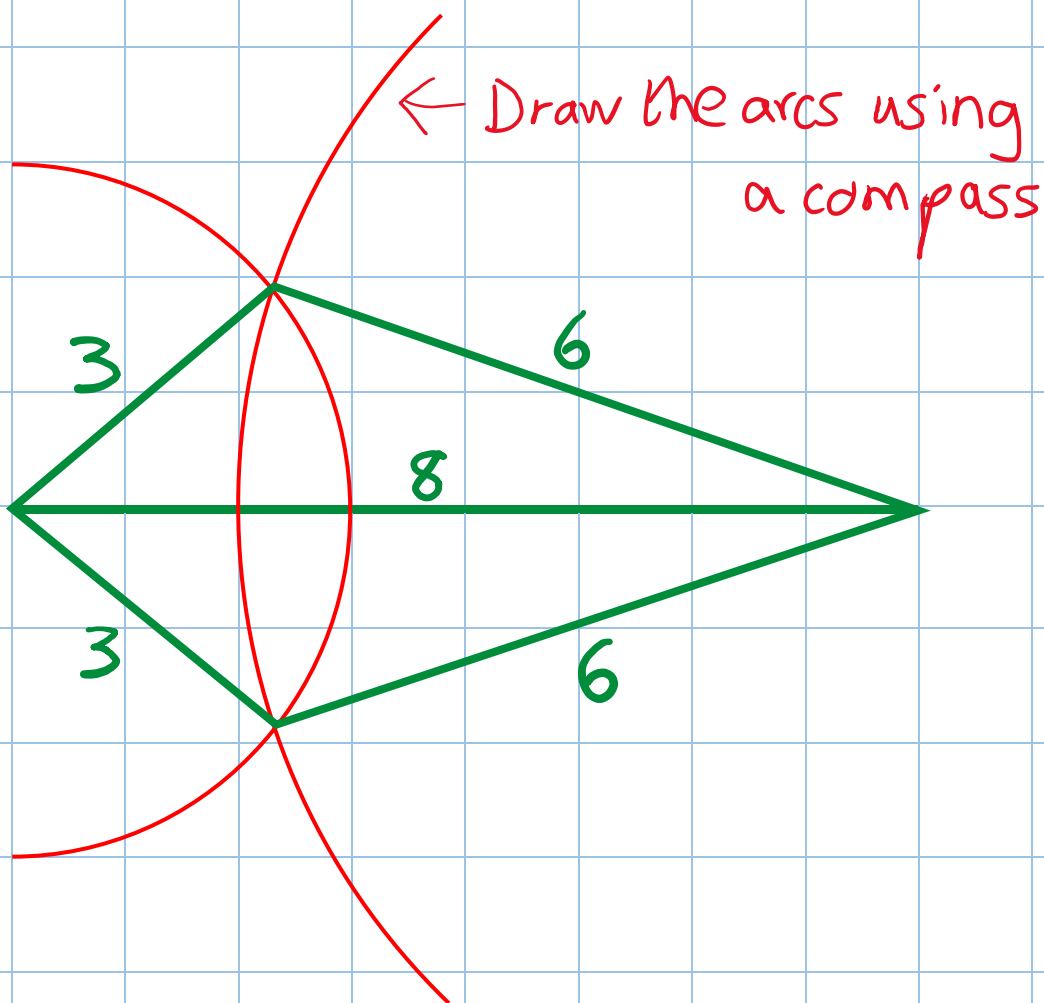



## Example 4



Using the following grid, draw a kite where

- the length of the longest diagonal is 8 units;
- the length of the sides are 3 units and 6 units.



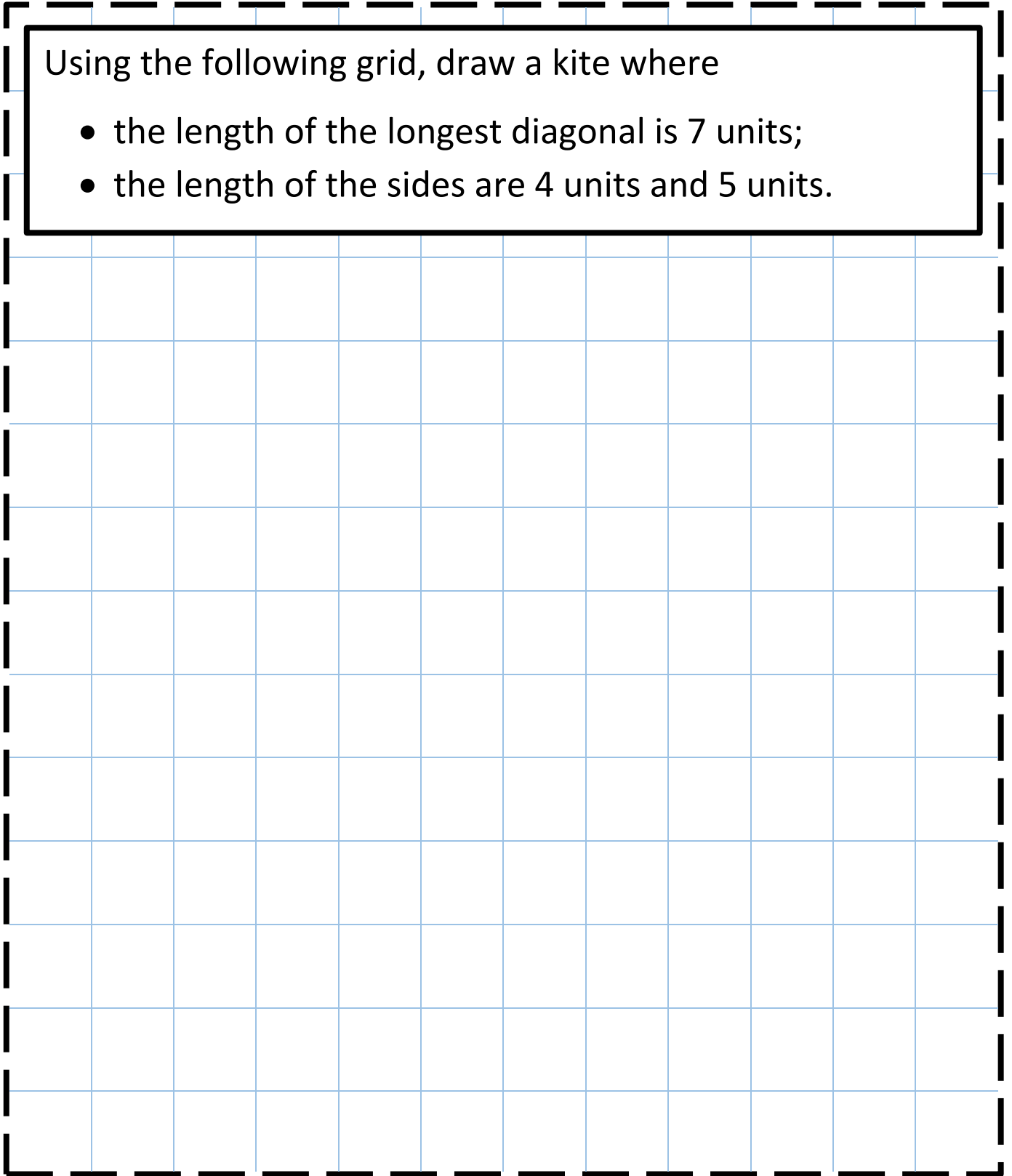


## Exercise 4



Using the following grid, draw a kite where

- the length of the longest diagonal is 7 units;
- the length of the sides are 4 units and 5 units.





## Quiz 5



1)  $9^2$

2) Write the best metric unit to measure the height of a person.

3) Which number comes next?  
10, 6, 2, -2, \_\_\_\_\_

4) Simplify

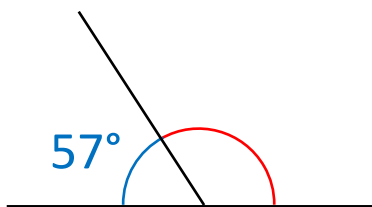
$$8x - 3x + x + 7x$$

5) How many vertices does a cone have?

6) Solve the equation

$$5x - 1 = 29$$

7) Calculate the size of the red angle.



8)  $\sqrt[3]{216}$

9) 4.2 litres = \_\_\_\_\_ ml

\_\_\_\_ out of 9



## Quiz 6



1)  $5 + -3$

2)  $5 - -3$

3)  $5 \times -3$

4)  $2.64 \times 6$

5) Write 64% as a decimal.

6) Write 0.03 as a percentage.

7) Round off 7.3259 to one decimal place.

8) Round off 7.3259 to two decimal places.

9) Round off 7.3259 to three decimal places.

\_\_\_ out of 9

## Evaluating the Workbook



## Notes



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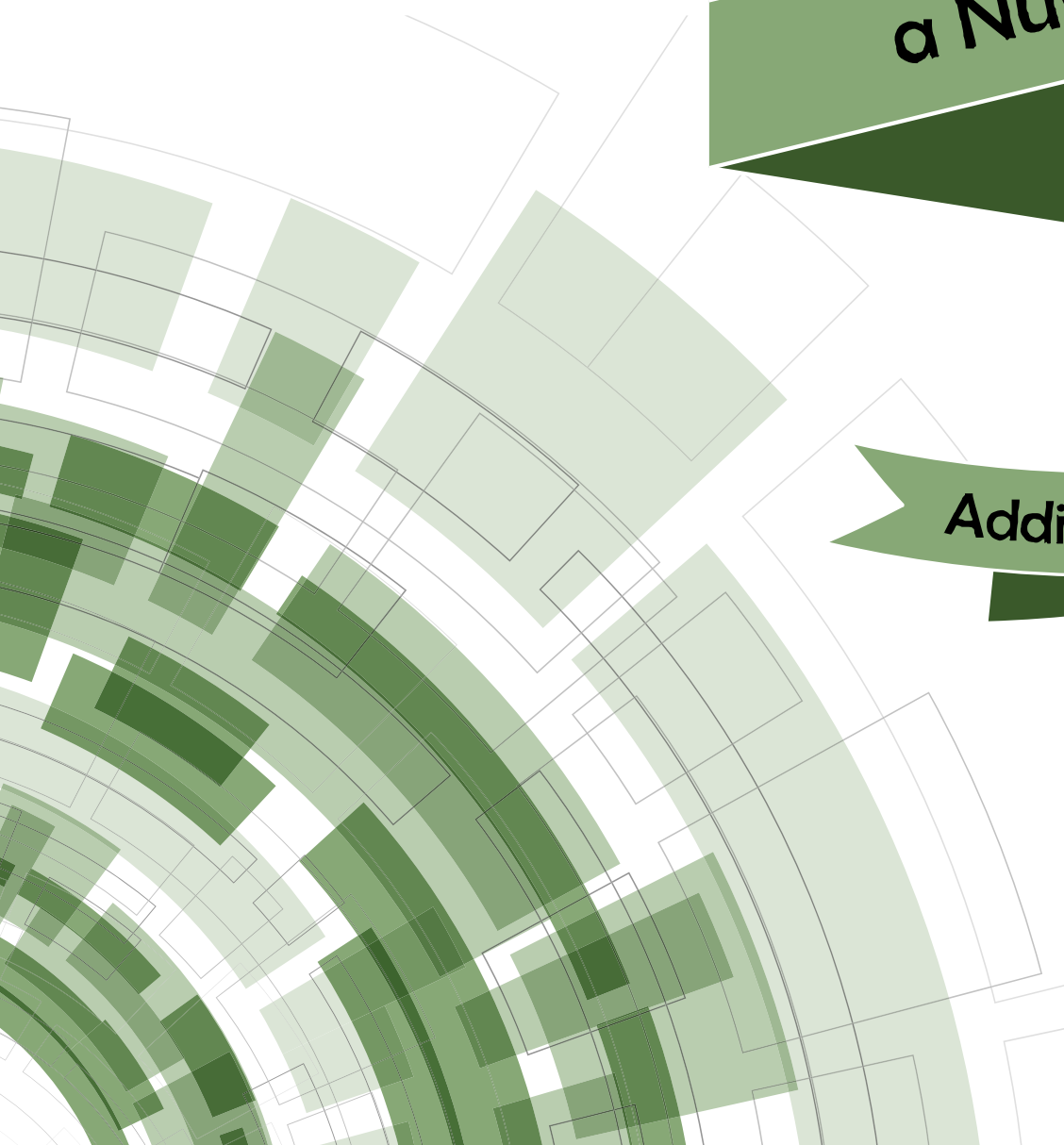
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# Parts of a Number

## Additional Tasks





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Sock Drawer	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
The Band	19



## Quiz 1



$4 \times 9 =$	$2 \times 7 =$	$1 \times 14 =$	$4 \times 5 =$	$8 \times 4 =$
$9 \times 5 =$	$2 \times 4 =$	$11 \times 10 =$	$7 \times 8 =$	$9 \times 6 =$
$2 \times 9 =$	$8 \times 3 =$	$12 \times 3 =$	$11 \times 4 =$	$6 \times 6 =$
$11 \times 12 =$	$0 \times 4 =$	$7 \times 5 =$	$9 \times 9 =$	$13 \times 4 =$
$1 \times 8 =$	$3 \times 9 =$	$4 \times 7 =$	$5 \times 3 =$	$7 \times 9 =$

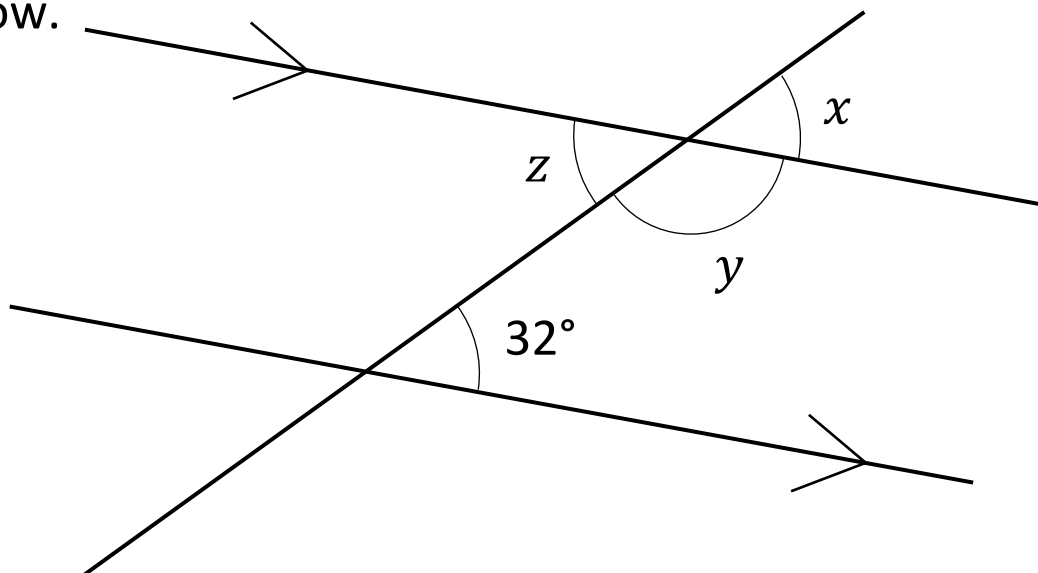
\_\_\_ out of 25



# Example 1



Calculate the size of the angles  $x$ ,  $y$  and  $z$  in the diagram below.



$$x = 32^\circ \text{ (corresponding angles)}$$

$$\begin{array}{r} 1780 \\ - 32 \\ \hline 148 \end{array}$$

$$z = 32^\circ \text{ (alternate angles)}$$

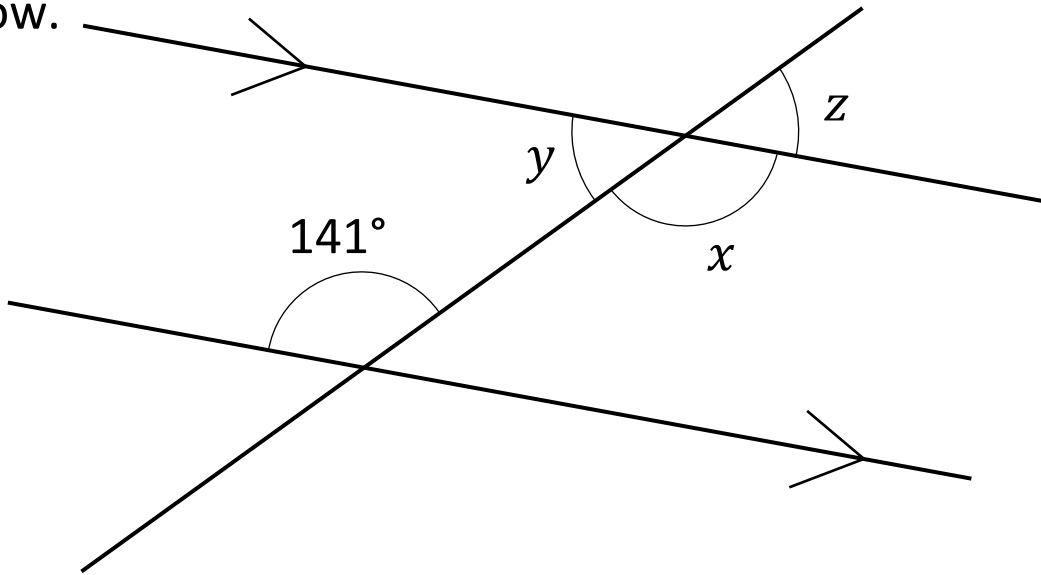
$$y = 148^\circ \text{ (internal angles)}$$



# Exercise 1



Calculate the size of the angles  $x$ ,  $y$  and  $z$  in the diagram below.




\_\_\_ out of 3



## Quiz 2



1)  $8 - 4 =$

2)  $4 - 8 =$

3)  $-4 - 8 =$

4)  $4 - -8$

5)  $8 \div 4 =$

6)  $4 \div 8 =$

7)  $8 \times 4 =$

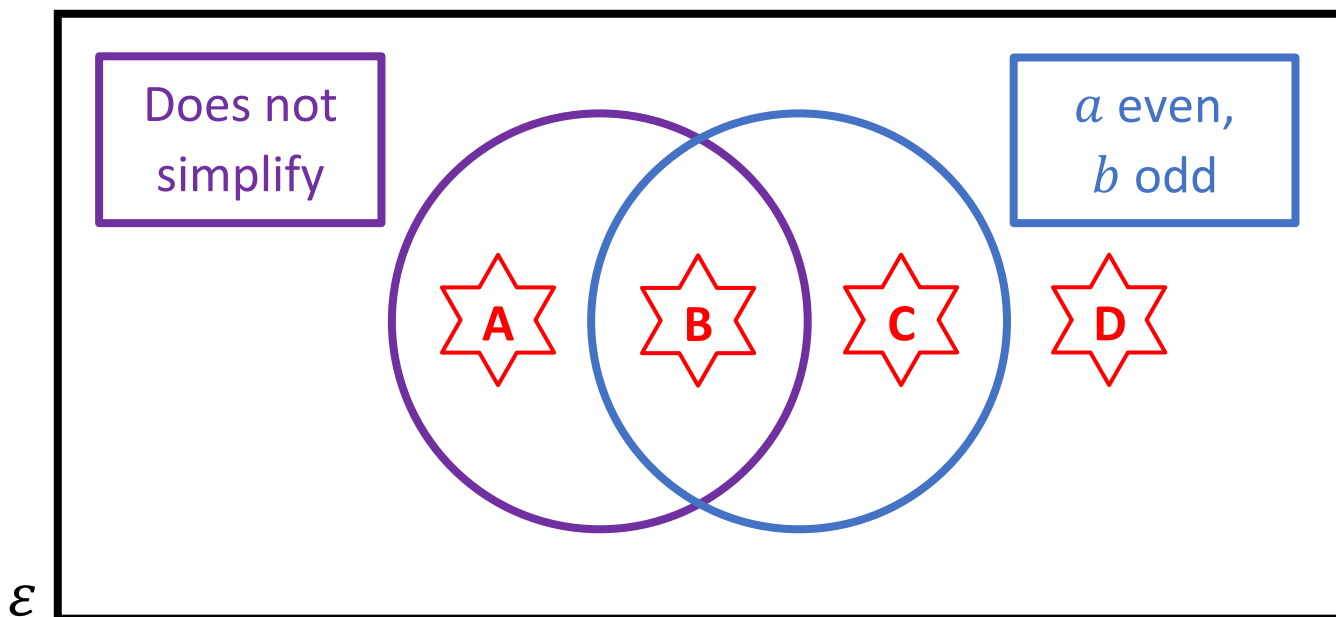
8)  $8 \times -4 =$

9)  $-4 \times -8 =$

\_\_\_ out of 9



Venn Diagram Challenge 1



Think of a ratio of the form  $a : b$  that could fit into each region. If you think a region is impossible to fill, explain why!







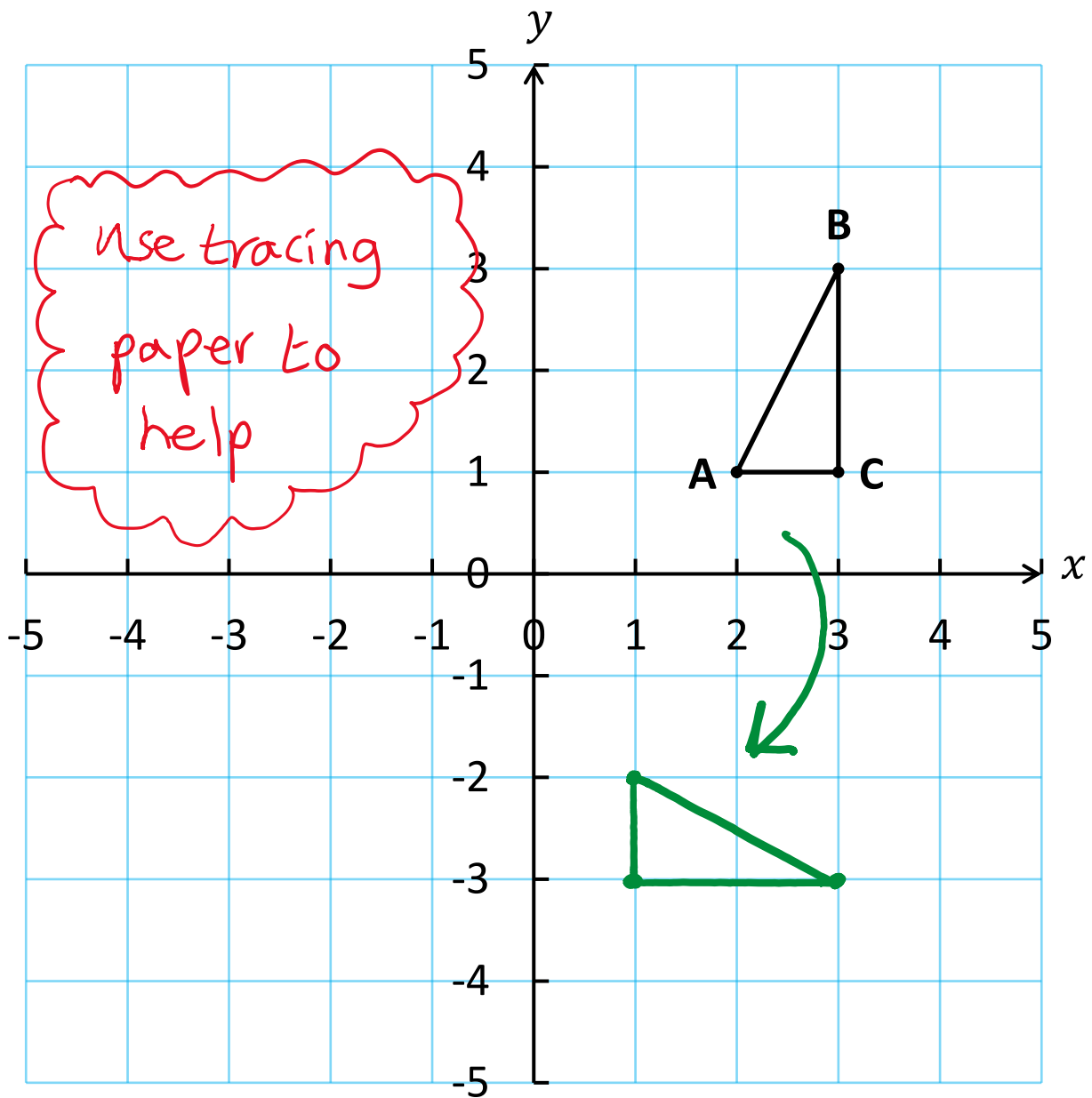




## Example 2

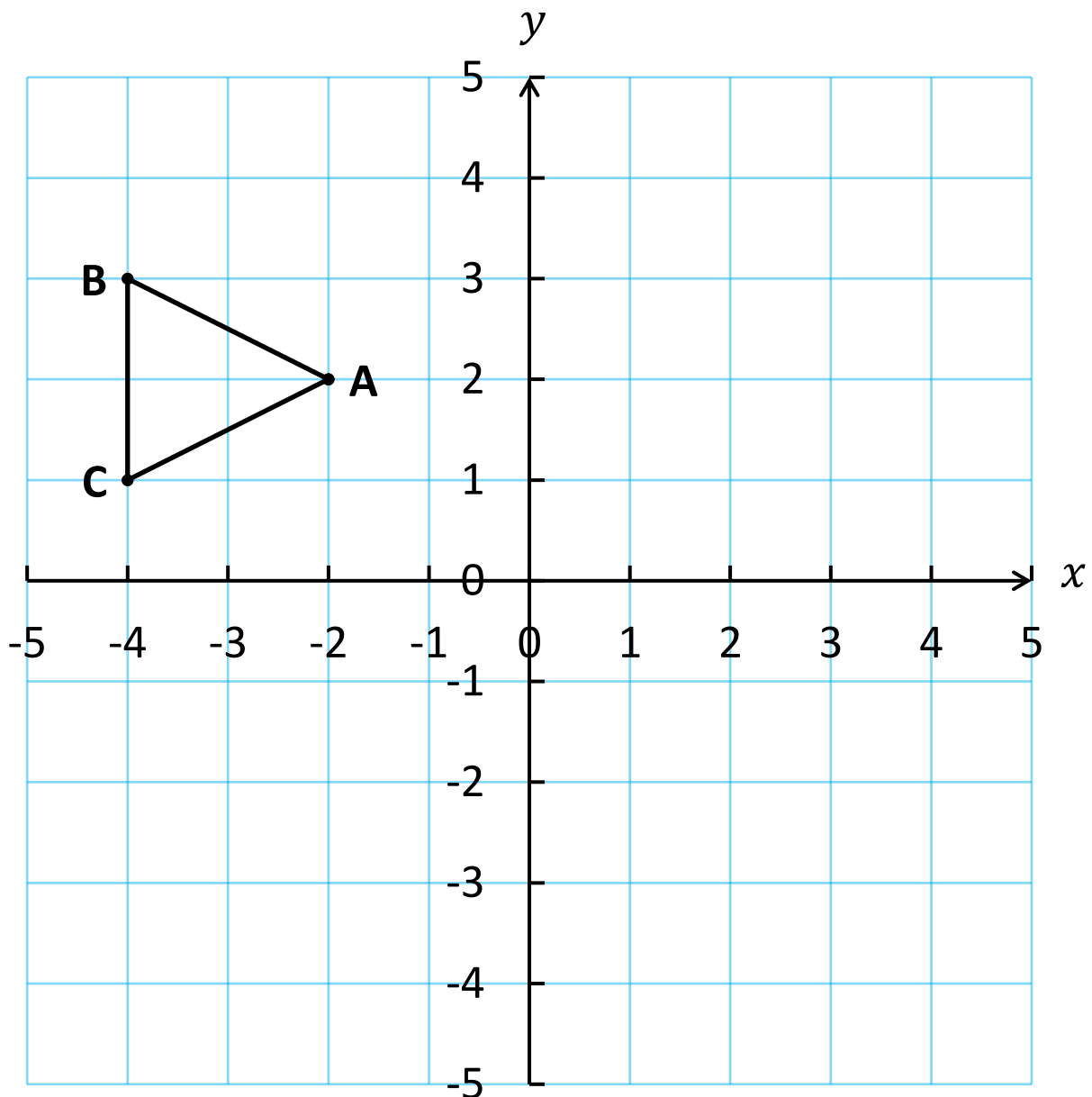


Rotate the triangle **ABC** by  $90^\circ$  clockwise around the origin.



## Exercise 2

Rotate the triangle **ABC** by  $90^\circ$  clockwise around the origin.



\_\_\_ out of 2



## Quiz 3



1)  $\sqrt{49}$

2) List all the factors of 20.

3) Solve the equation  
 $3x - 4 = 20$ 

4)  $4.6 \text{ m} =$   
\_\_\_\_\_ cm

5) What is the formula for calculating the area of any triangle?

6) How many vertices does a square based pyramid have?

7) The mode of  
2, 7, 4, 3, 5, 8, 4, 5

8)  $10 \div -2$

9)  $4.3 \times 7$

\_\_\_\_ out of 9



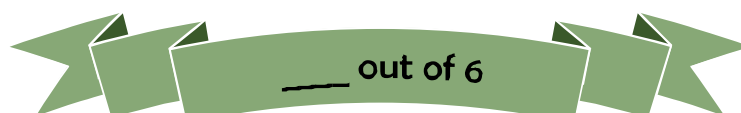
1) What fraction of the socks are yellow? Give your answer in its simplest form.

2) Write the socks as a ratio yellow : blue : green, in its simplest form.



3) What percentage of the socks are blue?

4) Two more blue socks are added to the drawer. What percentage of the socks are now blue?





### Example 3



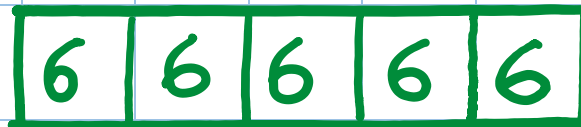
The ratio of the number of males to females on a bus is 3 : 5. There are 12 less males than females on the bus. How many people are on the bus in total?

Males



12

Females



$$12 \div 2 = 6$$

$$3 + 5 = 8$$

$$6 \times 8 = \underline{\underline{48}}$$





## Quiz 4

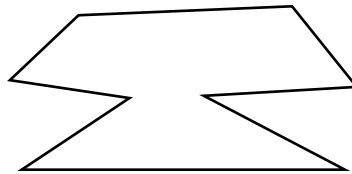


1) Circle all the multiples of 5.

825   253   180

554   1,425   6,530

2) Name this polygon.



3) How many minutes are there in a single day?

4) What type of angle is the angle  $95^\circ$ ?

5) What is the total internal angles of any triangle?

6) 20% of £30

7) The mean of 1, 2, 3, 4

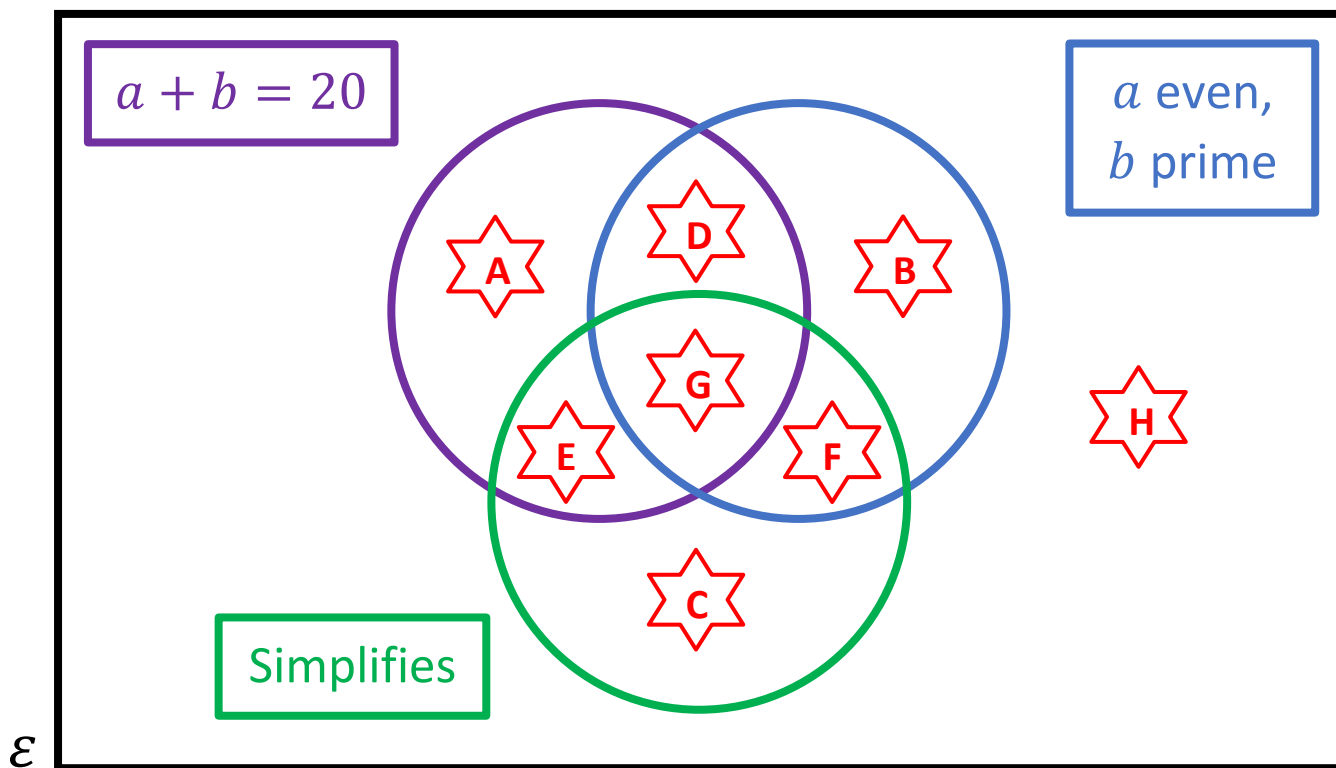
8) The mode of 1, 2, 3, 4

9) The range of 1, 2, 3, 4

\_\_\_ out of 9



# Venn Diagram Challenge 2



Think of a ratio of the form  $a : b$  that could fit into each region. If you think a region is impossible to fill, explain why!




# Example 4



Calculate (a)  $693 \times 57$  (b)  $693 \div 57$

6 9 3

3	3	4	1	5	
	0	5	5		
9	4	6	2	7	10
	2	3	1		
	5	0	1		

Answer: 39,501

57	)	6	9	3	
-		5	7	0	
		0	x	2	3
		-	5	7	
		5	8	6	
		-	5	7	
		1	2	9	

Answer: 12 remainder 9

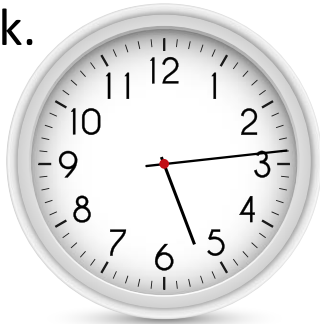




## Quiz 5



1) Write the time in the 24-hour clock.



p.m.

2) Dewi's score in a test was 21 out of 25. What was his percentage in the test?

$$3) \frac{2}{7} + \frac{3}{7}$$

$$4) 2.7 \times 100$$

5) Write one billion in figures.

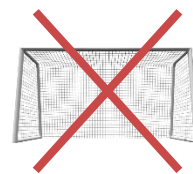
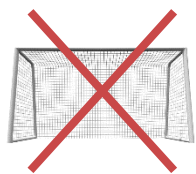
$$6) \frac{2}{7} \times \frac{3}{7}$$

$$7) 13 \times 12$$

$$8) \text{£}8 - \text{£}2.75$$

$$9) \frac{2}{7} \div \frac{3}{7}$$

\_\_\_ out of 9



Sara and Ryan sing in the same band. One night the band plays for 80 minutes. Sara sings for 65% of the 80 minutes. Ryan sings for  $\frac{5}{8}$  of the 80 minutes.



What can you calculate from this information?

## Evaluating the Workbook



## Notes



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Measuring

Shapes 2

Additional Tasks



## Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Apples	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Ashley and Aaron’s Money	19



## Quiz 1



$3 \times \square = 15$	$\square \times 6 = 18$	$2 \times \square = 8$	$5 \times \square = 40$	$\square \times 4 = 28$
$8 \times \square = 48$	$3 \times \square = 27$	$\square \times 7 = 49$	$\square \times 2 = 30$	$6 \times \square = 54$
$\square \times 4 = 32$	$3 \times \square = 12$	$\square \times 1 = 16$	$9 \times \square = 45$	$\square \times 7 = 35$
$2 \times \square = 16$	$\square \times 9 = 54$	$6 \times \square = 42$	$\square \times 6 = 66$	$3 \times \square = 36$
$9 \times \square = 72$	$\square \times 5 = 60$	$2 \times \square = 50$	$5 \times \square = 5$	$\square \times 8 = 24$

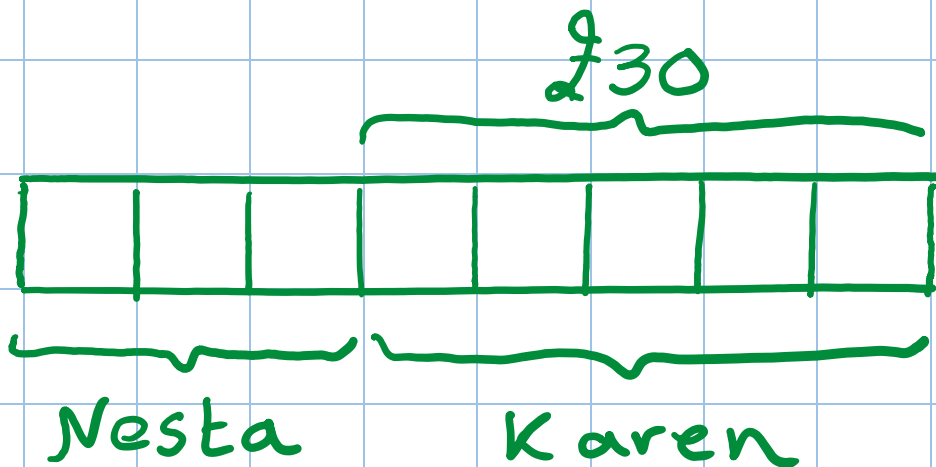
\_\_\_ out of 25



## Example 1



A sum of money was shared between Nesta and Karen according to the ratio 3 : 5. If Karen received £30, how much did Nesta receive?



$$£ 30 \div 5 = £ 6$$

$$\begin{aligned} \text{Nesta: } & 3 \times 6 \\ & = \underline{£ 18} \end{aligned}$$

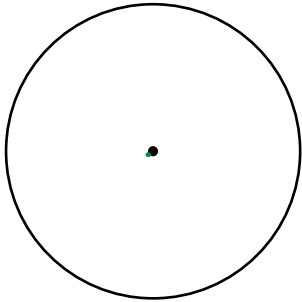




## Quiz 2



1) Add a sector to the circle.



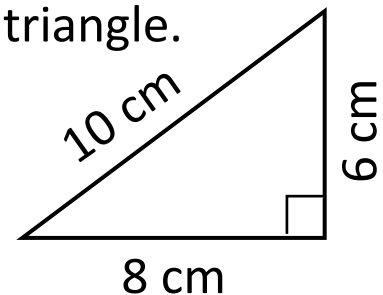
2)  $3.14 \times 8$

3)  $9^2$

4) Sketch a cuboid.

5) Draw a horizontal line.

6) Calculate the area of the triangle.



7)  $\frac{2}{7} + \frac{3}{7}$

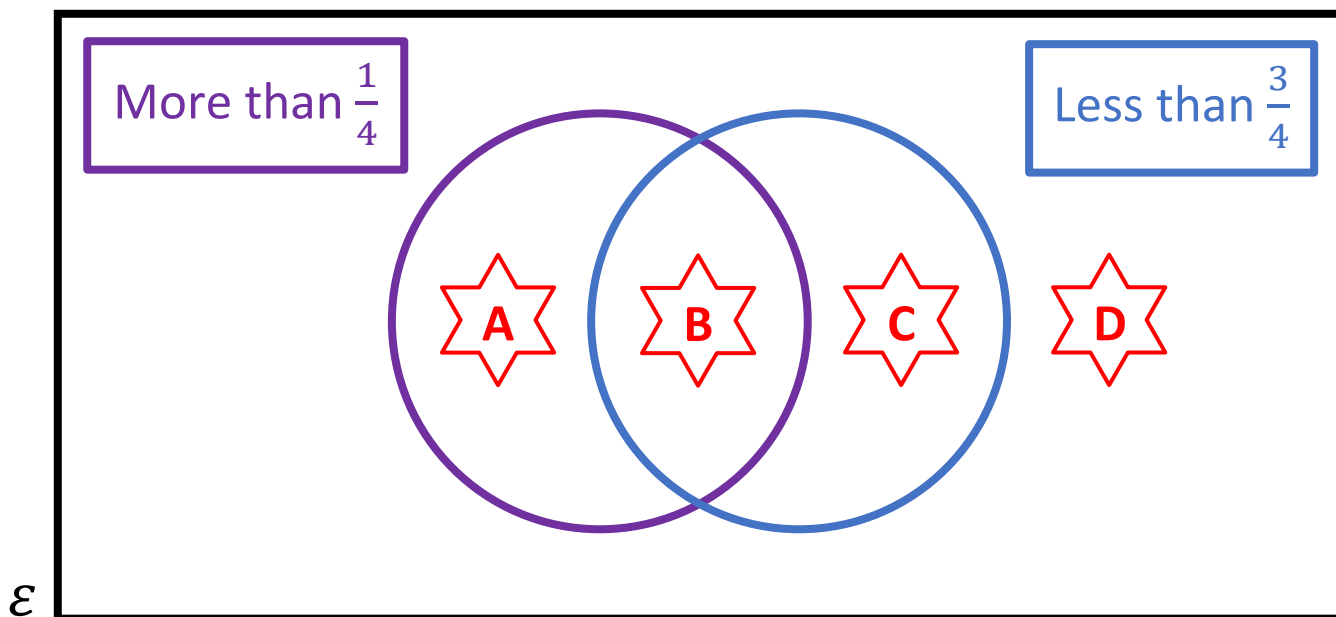
8)  $\frac{2}{7}$  of £42

9) What is the reciprocal of  $\frac{2}{7}$ ?

\_\_\_ out of 9



Venn Diagram Challenge 1



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











## Example 2



Calculate  $\frac{3}{4} + \frac{5}{12}$ . Write your answer as a mixed number.

$$\frac{3}{4} + \frac{5}{12} = \frac{9}{12} + \frac{5}{12}$$

$$= \frac{14}{12}$$

$$= 1\frac{2}{12}$$

$$= 1\frac{1}{6}$$

The traditional method

The peanut method

	3	4
5	X	20
12	36	48

Answer:

$$\frac{56}{48} = \frac{28}{24} = \frac{14}{12} = \frac{7}{6} = 1\frac{1}{6}$$





## Quiz 3



1) Simplify the ratio 24 : 36.

2) Simplify the fraction  $\frac{24}{36}$ .

3)  $24 \times 36$

4) 10% of £24

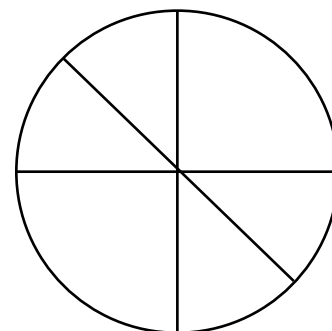
5)  $\frac{1}{10}$  of £24

6)  $0.1 \times £24$

7) What is the reciprocal of 7?

8) Change  $2\frac{1}{3}$  to be an improper fraction.

9) Shade  $\frac{3}{4}$  of the shape below.



\_\_\_ out of 9

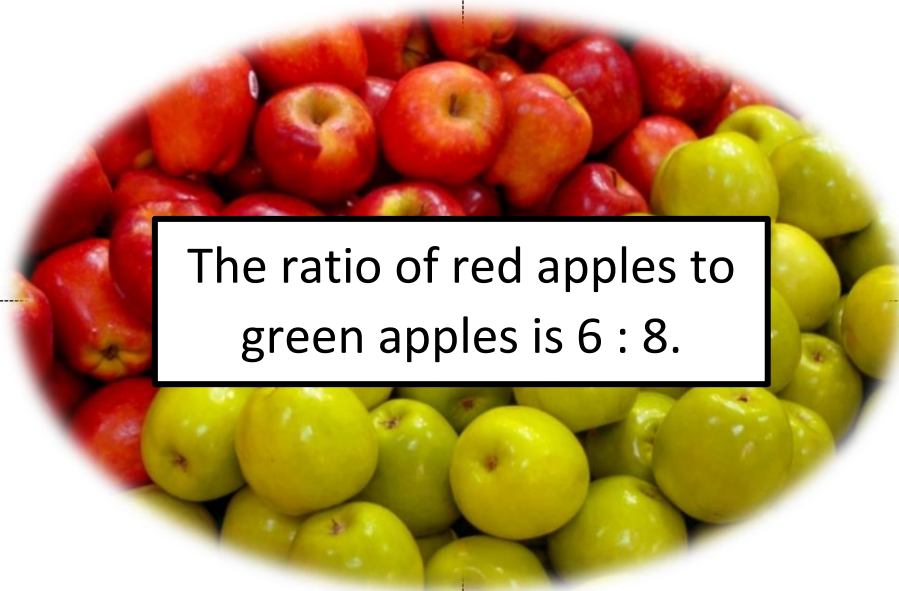


## The Apples



1) Simplify the ratio 6 : 8.

2) There are 42 apples in total. How many are red?



3) A  $\frac{1}{6}$  of the red apples are rotten and are thrown away. What fraction of the apples are now red?

4) What is the name of the solid that is most like the shape of an apple?

\_\_\_ out of 8



### Example 3



Which is the best bargain?

250 ml

£1.80



450 ml

£2.99



$$250 \text{ ml} : \pounds 1.80$$

$$\downarrow \div 250$$

$$1 \text{ ml} : \pounds 0.0072$$

$$450 \text{ ml} : \pounds 2.99$$

$$\downarrow \div 450$$

$$1 \text{ ml} : \pounds 0.0066\bar{4}$$

Conclusion: Each 1ml costs less in the large bottle. So, this is the best bargain.

Alternative Method

$$250 \text{ ml} : \pounds 1.80$$

$$\downarrow \div 1.80$$

$$138.8 \text{ ml} : \pounds 1$$

$$450 \text{ ml} : \pounds 2.99$$

$$\downarrow \div 2.99$$

$$150.50 \dots \text{ ml} : \pounds 1$$

Conclusion: Each  $\pounds 1$  buys more tomato ketchup in the large bottle. So, this is the best bargain.

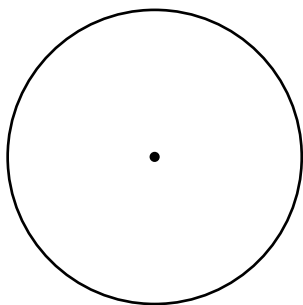




## Quiz 4



1) Add a chord to the circle.

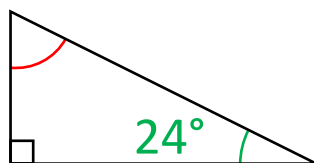


2)  $\sqrt{100}$

3)  $\frac{1}{2} \times \frac{3}{4}$

4) 50% of \$60

5) Calculate the size of the red angle.



6) How does the column vector  $\begin{pmatrix} -4 \\ 7 \end{pmatrix}$  move a shape?

7) The mean of 1, 4, 2, 5, 3

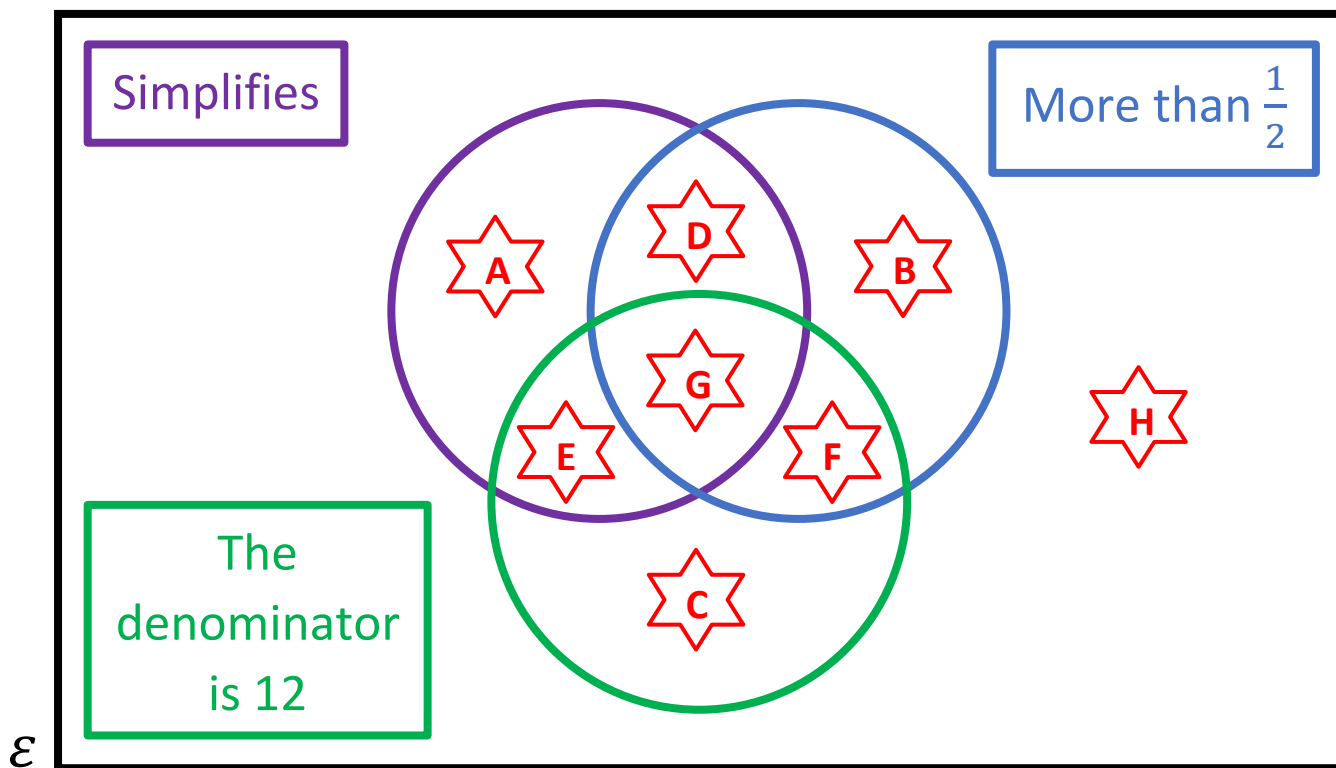
8)  $3.4 + 9.78$

9)  $9.8 \div 100$

\_\_\_ out of 9



# Venn Diagram Challenge 2



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




## Example 4



The scale of the map below is 1 : 5000.

What is the actual distance between A and B, in metres?



Measuring using a ruler, the distance between A and B is 8.1 cm.

$$8.1 \times 5000 = 40,500 \text{ cm}$$

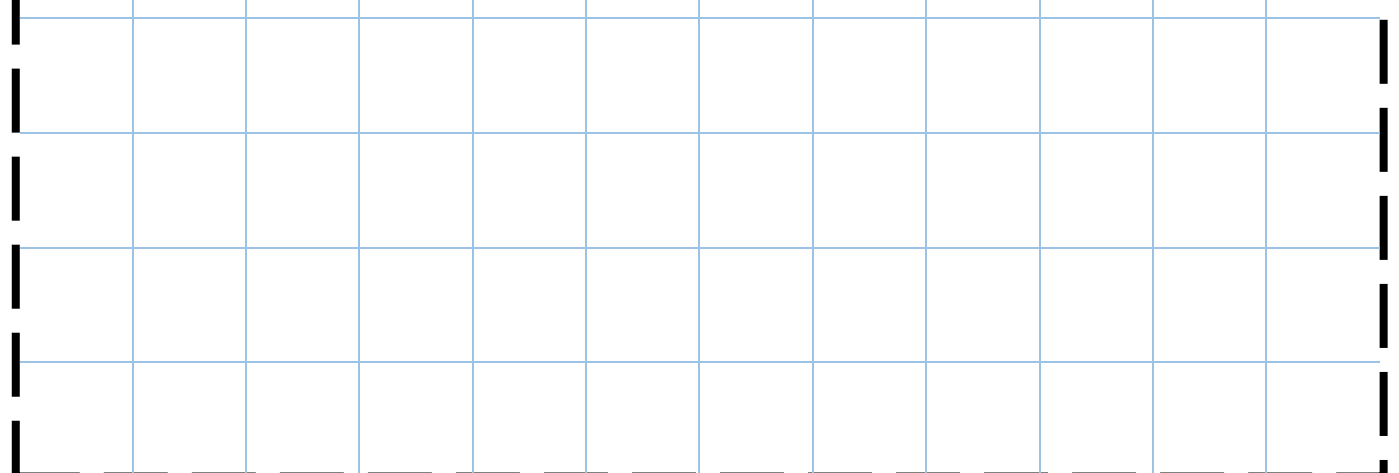
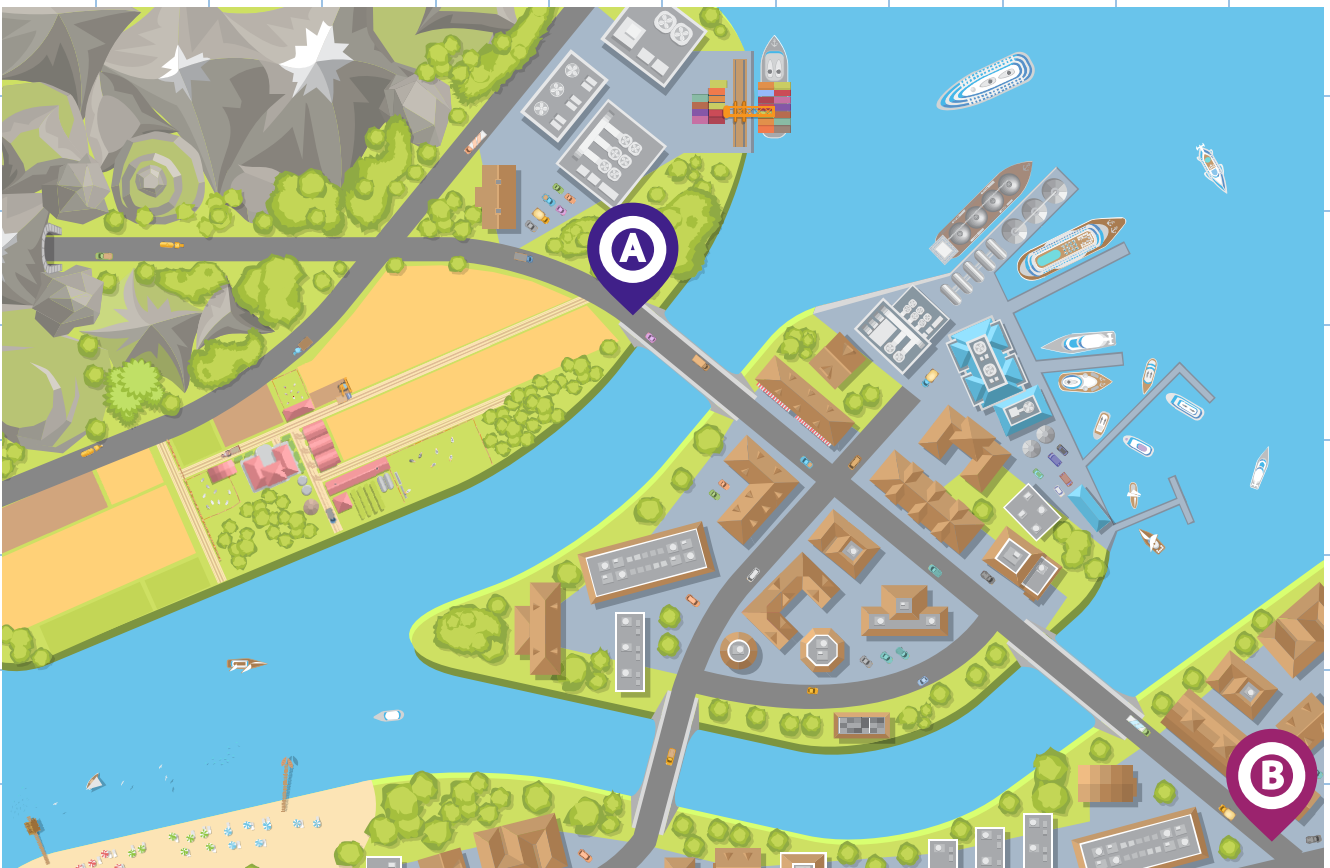
$$40,500 \div 100 = 405 \text{ m}$$



## Exercise 4



The scale of the map below is 1 : 10,000.  
 What is the actual distance between A and B, in metres?



\_\_\_ out of 3

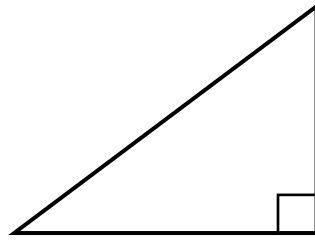


## Quiz 5



1) What is the formula for calculating the area of a circle?

2) Label the hypotenuse using "H".



3) Calculate  $\frac{2}{5}$  of £15.

4) 10% of 68 cm.

5)  $8^2$

6) Name the shape below.

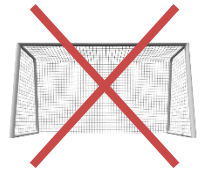
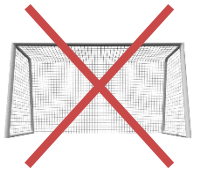


7) Write the time 10:00 pm in the 24-hour clock.

8)  $6 \times -2$

9) Is 17 a prime number?

\_\_\_ out of 9



Ashley and Aaron share a sum of money according to the ratio 2 : 5. Aaron receives £45 more than Ashley.  
What can you calculate from this information?

## Evaluating the Workbook



## Notes



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**Developing**

**Algebra**

**Additional Tasks**



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Pepperoni Pizza	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Perimeter of the Garden	19



## Quiz 1



Solve the following equations.

1)  $x + 6 = 8$

2)  $x - 3 = 6$

3)  $3x = 12$

4)  $\frac{x}{2} = 6$

5)  $x + 1 = -5$

6)  $x - 2 = -8$

7)  $2x + 1 = 15$

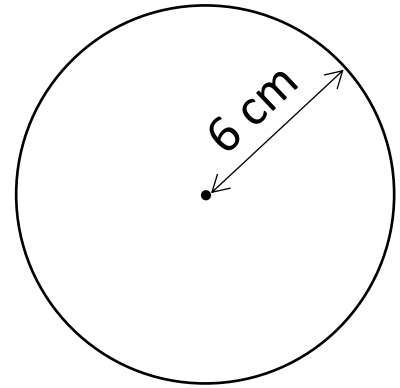
8)  $3x - 2 = 19$

9)  $\frac{x}{3} + 1 = 7$

\_\_\_ out of 9



Calculate the circumference and area of the circle on the right.



$$\begin{aligned}\text{Circumference} &= \pi \times \text{diameter} \\ &= \pi \times 12 \\ &= 37.69911184 \\ &= \underline{37.70 \text{ cm to 2 d.p.}}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \pi \times \text{radius}^2 \\ &= \pi \times 6^2 \\ &= 113.0973355 \\ &= \underline{113.10 \text{ cm}^2 \text{ to 2 d.p.}}\end{aligned}$$





## Quiz 2

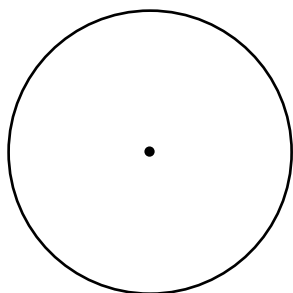


1)  $\frac{2}{5}$  of £40

2) 30% of £40

3)  $0.1 \times £40$

4) Add a segment to the circle below.



5) What type of angle is the angle  $137^\circ$ ?

6) How would the column vector  $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$  move a shape?

7)

2 kg = \_\_\_\_\_ g

3 feet = \_\_\_\_\_  
inches

3.5 m = \_\_\_\_\_ cm

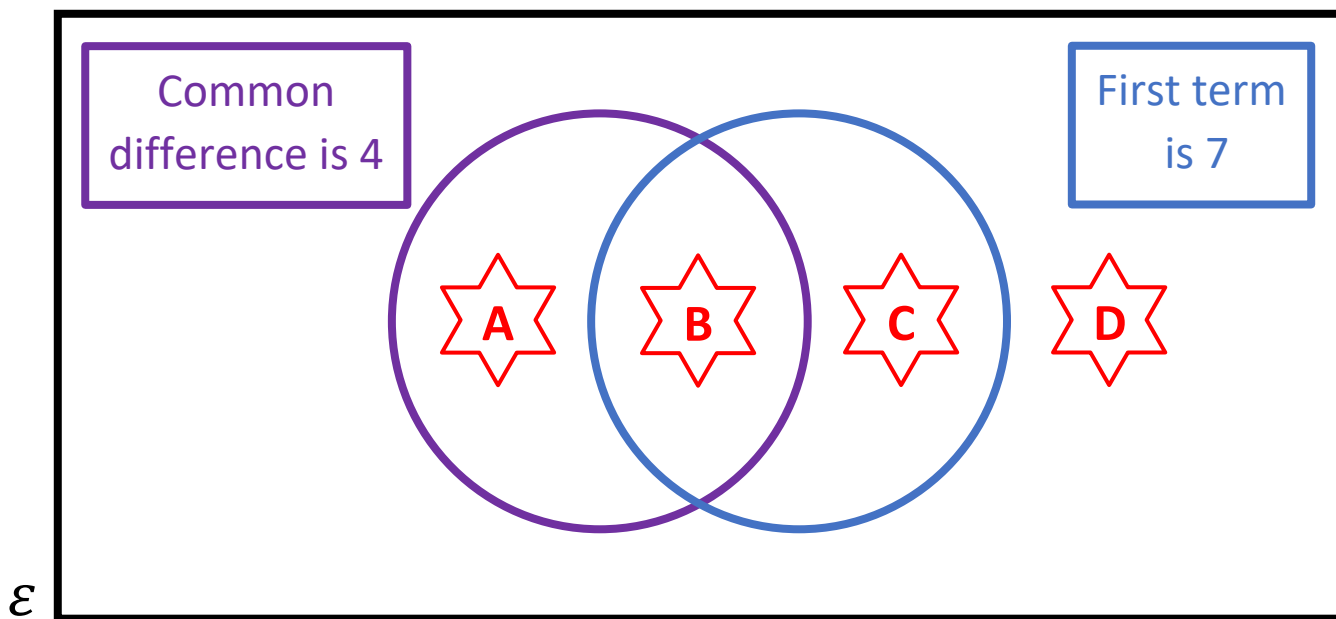
8)  $8 \times -4$

9)  $8 - -4$

\_\_\_\_\_ out of 11



# Venn Diagram Challenge 1



Think of the  $n$ th term of a sequence that could fit into each region. If you think a region is impossible to fill, explain why!







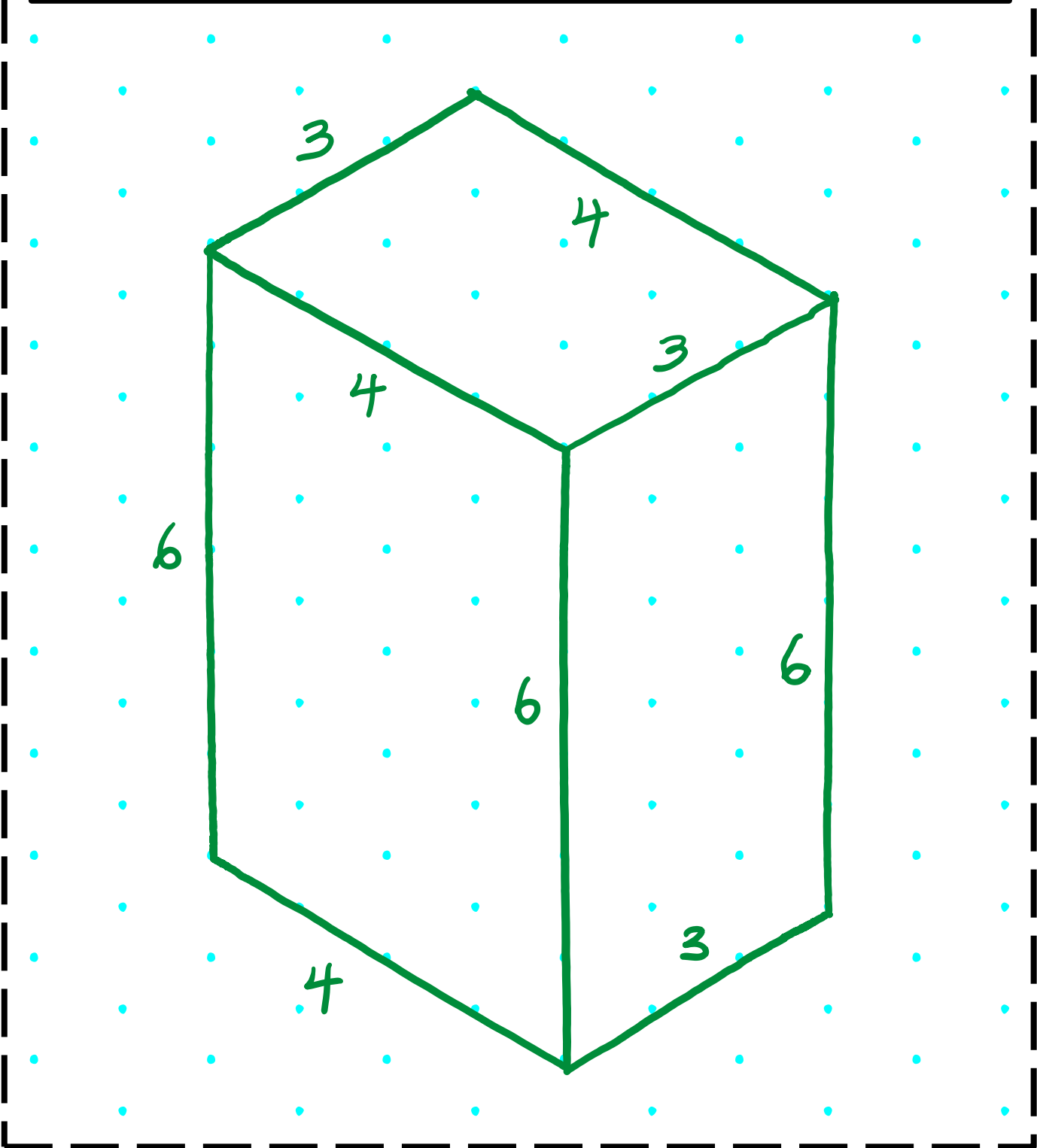




# Example 2



On the isometric paper below, draw a cuboid that measures 3 units by 4 units by 6 units.

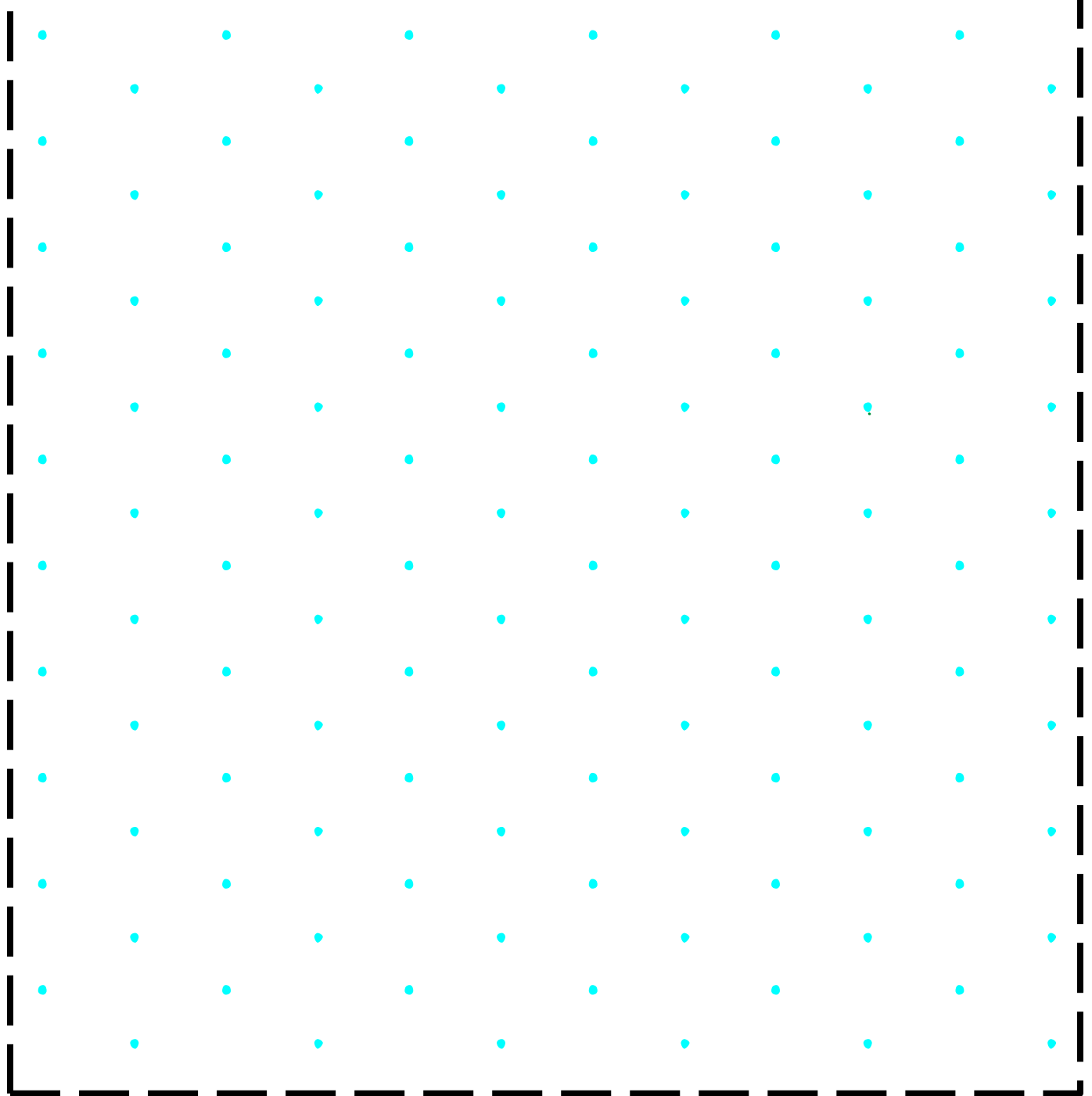




# Exercise 2



On the isometric paper below, draw a cuboid that measures 2 units by 5 units by 4 units.



\_\_\_ out of 3



## Quiz 3

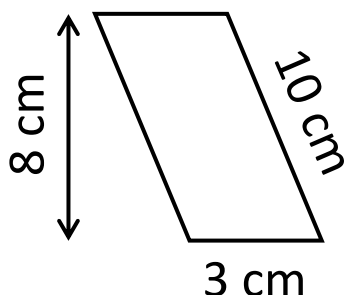


1) What is the  $n$ th term of the sequence 6, 10, 14, 18, ....?

2) Solve the equation  $4x = 28$ .

3) Simplify  $5d + 2u - 3d + 4u$

4) Calculate the area of the following shape.



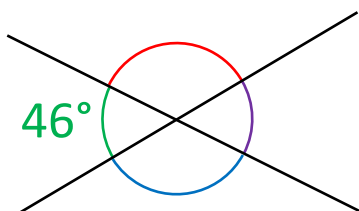
5) Sketch a triangular prism.

6) Was 1744 a leap year?

7) What is the name of a polygon with 6 edges?

8) What is the size of the purple angle?

9)  $6^2$



\_\_\_ out of 9



## The Pepperoni Pizza



1) What is the circumference of a pizza with diameter 12 inches?

2) What is the area of a pizza with diameter 12 inches?



3) Which is the best bargain? One 12-inch pizza for £10 or two 8-inch pizzas for £10?

4) Seren cuts the above 12-inch pizza into 8 equal pieces (sectors). What is the perimeter of each of these pieces?

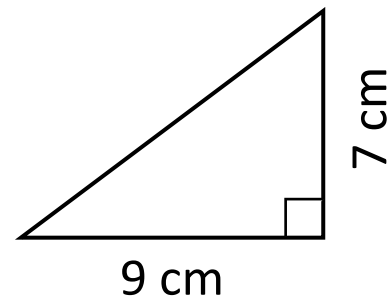
\_\_\_ out of 8



### Example 3



Calculate the perimeter of the right-angled triangle shown on the right.



Pythagoras' Theorem to calculate the length of the hypotenuse

$$9^2 = 81$$

$$7^2 = 49$$

Add as we want to find the hypotenuse

$$\begin{array}{r} 81 \\ + 49 \\ \hline 130 \end{array}$$

$$\sqrt{130} = 11.40 \text{ cm to 2 decimal places}$$

Perimeter of the triangle

$$= 11.40 + 9 + 7$$

$$= \underline{27.40 \text{ cm to 2 decimal places}}$$

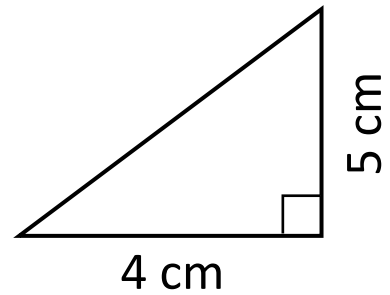
← The distance around the outside of the triangle



## Exercise 3



Calculate the perimeter of the right-angled triangle shown on the right.



\_\_\_ out of 5



## Quiz 4

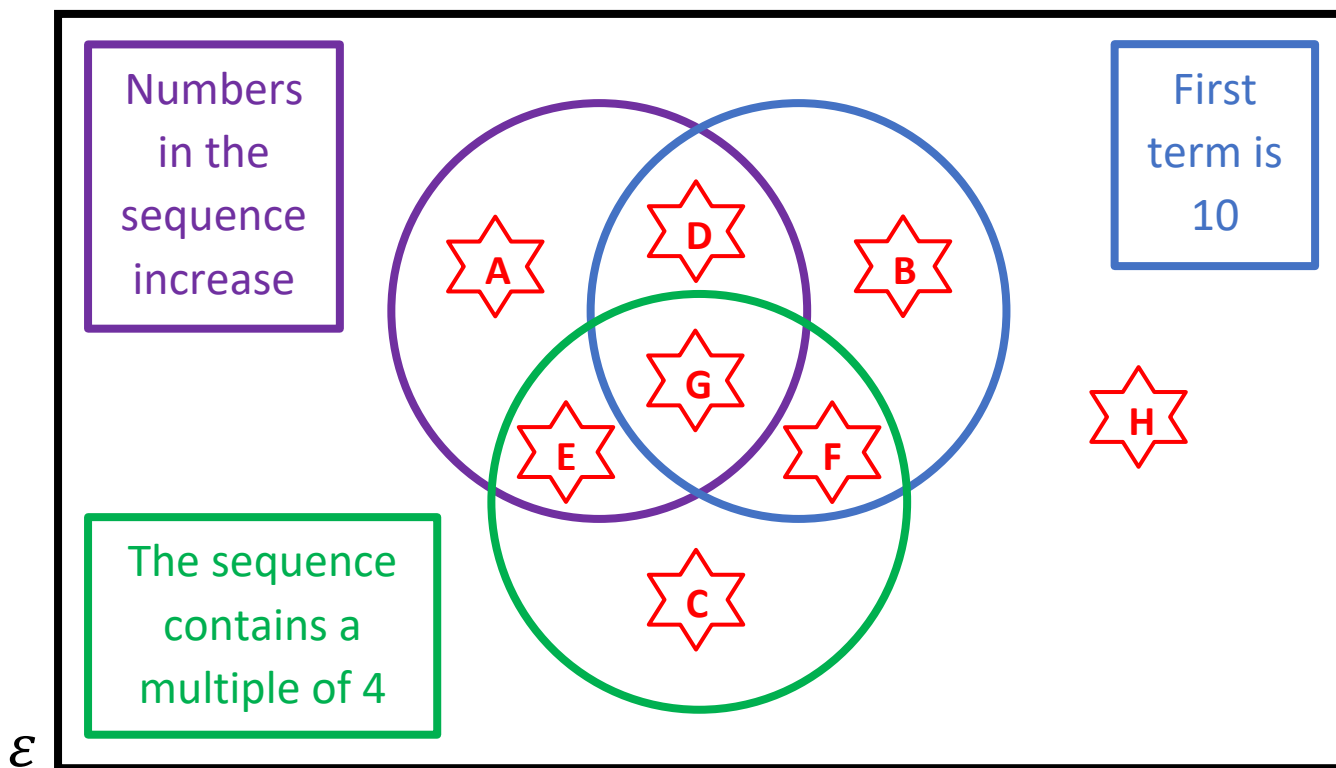


1) Expand $5(x - 2)$	2) Solve the equation $2x - 4 = 18$	3) Expand $(x + 3)(x + 2)$
4) Which number comes next? 14, 11, 8, 5, 2, ____	5) Substitute $x = 4$ into the expression $5x + 2$	6) Simplify $-3f + g - 2f + 4g$
7) Solve the equation $\frac{y}{2} - 4 = 8$	8) What is the $n$ th term of the sequence from question 4?	9) What is the 20th term of the sequence from question 4?

\_\_\_\_ out of 9



# Venn Diagram Challenge 2



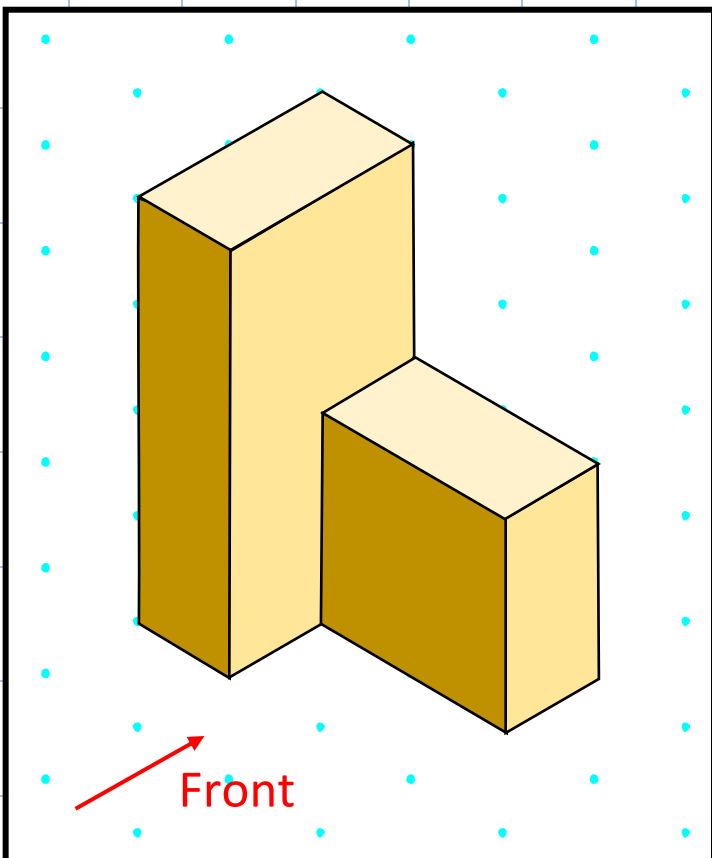
Think of the  $n$ th term of a sequence that could fit into each region. If you think a region is impossible to fill, explain why!



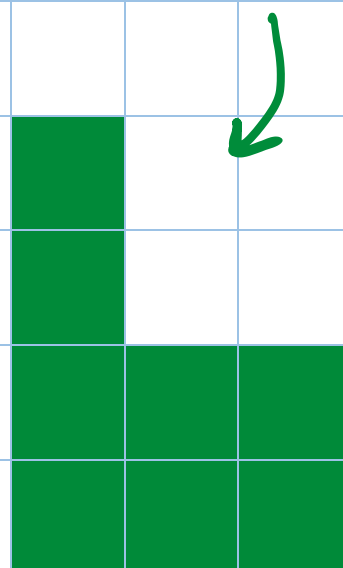

# Example 4



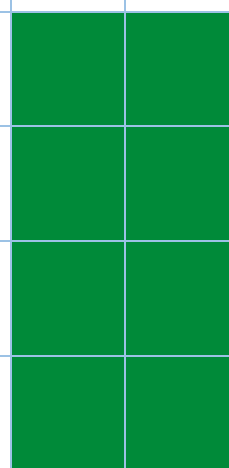
Draw a front elevation, plan view and right-side elevation for the following solid.



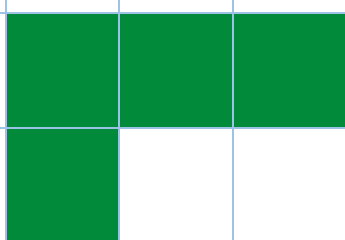
Front elevation



Right-side elevation



Plan view

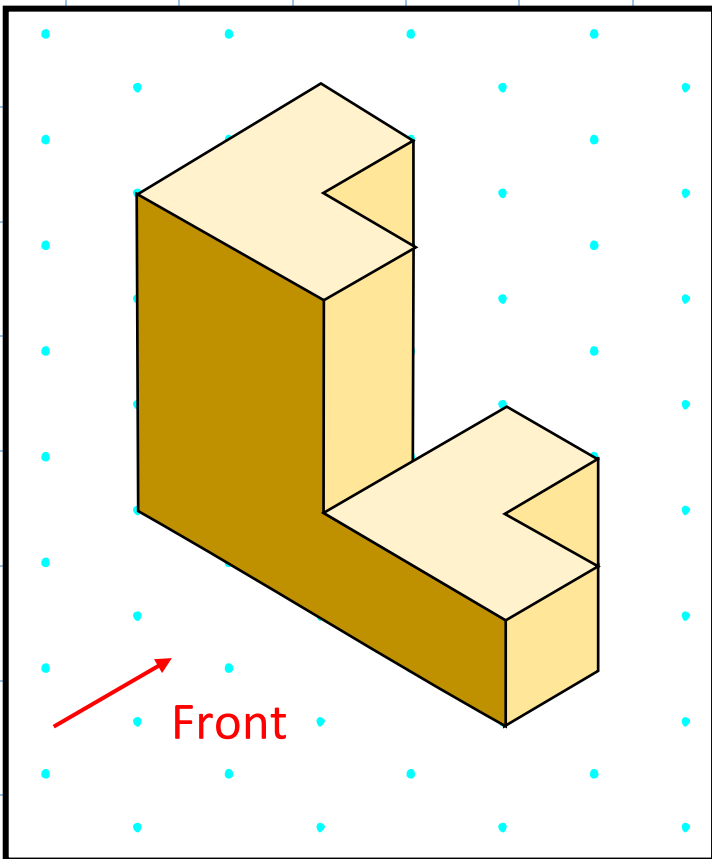




# Exercise 4



Draw a front elevation, plan view and right-side elevation for the following solid.



\_\_\_ out of 3



## Quiz 5



1) Solve  
 $4x + 1 = -7$

2)  $\sqrt{25}$

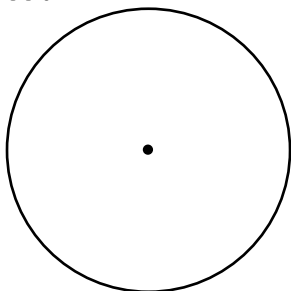
3) List all the factors of 25.

4)  $6.7 - 2.89$

5) 10% of €65

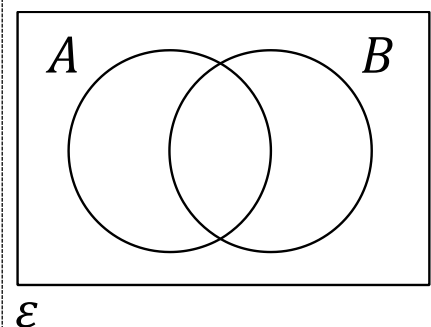
6) What is the perimeter of a 5 cm by 3 cm rectangle?

7) Add a tangent to the circle below.

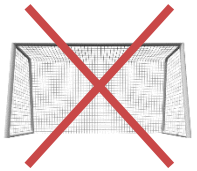


8) What is the total internal angles of any triangle?

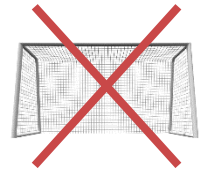
9) Shade  $A \cap B$ .



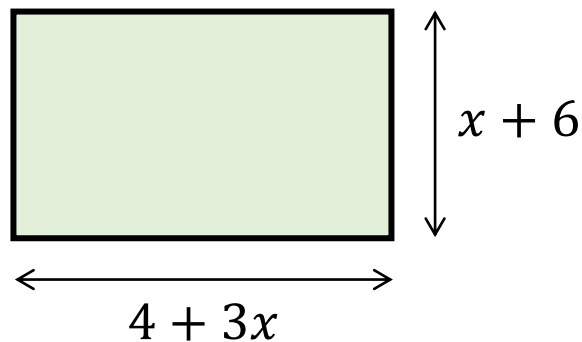
\_\_\_ out of 9



## Perimeter of the Garden



The rectangle shows a garden in the shape of a rectangle.



The perimeter of the garden is 32 metres.

What can you calculate from this information?

## Evaluating the Workbook



## Notes



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# Data Handling

## and Statistics 3

### Additional Tasks



## Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Function Machine	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Travelling to School	19



## Quiz 1



1) Solve the equation  $3x = 27$

2)  $\frac{4}{5}$  of £20

3) 20% of £20

4) Expand  $5(x + 3)$

5) What is the formula for calculating the circumference of a circle?

6) Sketch a cone.

7)  $5 + -2$

8)  $5 - -2$

9)  $5 \times -2$

\_\_\_ out of 9



## Example 1



What is the 100th term of the following sequence?

15, 23, 31, 39, 47, 55, 63, ...

$$\begin{array}{cccccccc} 7 & 15, & 23, & 31, & 39, & 47, & 55, & 63, & \dots \\ \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \uparrow & \\ -8 & +8 & +8 & +8 & +8 & +8 & +8 & +8 & \end{array}$$

$$N\text{th term: } 8n + 7$$

$$\begin{aligned} 100\text{th term: } & 8 \times 100 + 7 \\ & = 800 + 7 \\ & = \underline{807} \end{aligned}$$



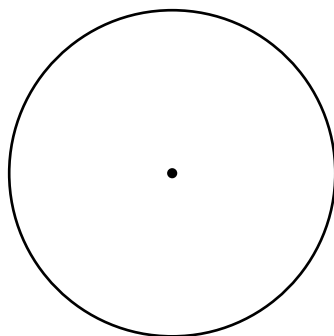


## Quiz 2

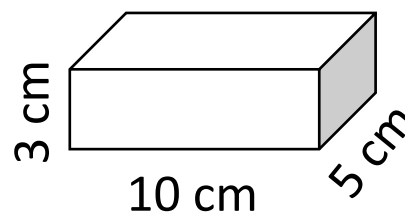


1) Expand  
 $(x + 6)(x - 2)$

2) Add a sector to  
the circle below.

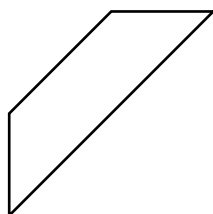


3) What is the  
volume?

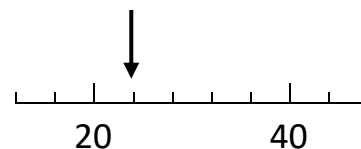


4) List all the  
factors of 24.

5) Add symmetry  
lines to the shape  
below.



6) The arrow  
points towards...



7)  $2.5 \times 9$

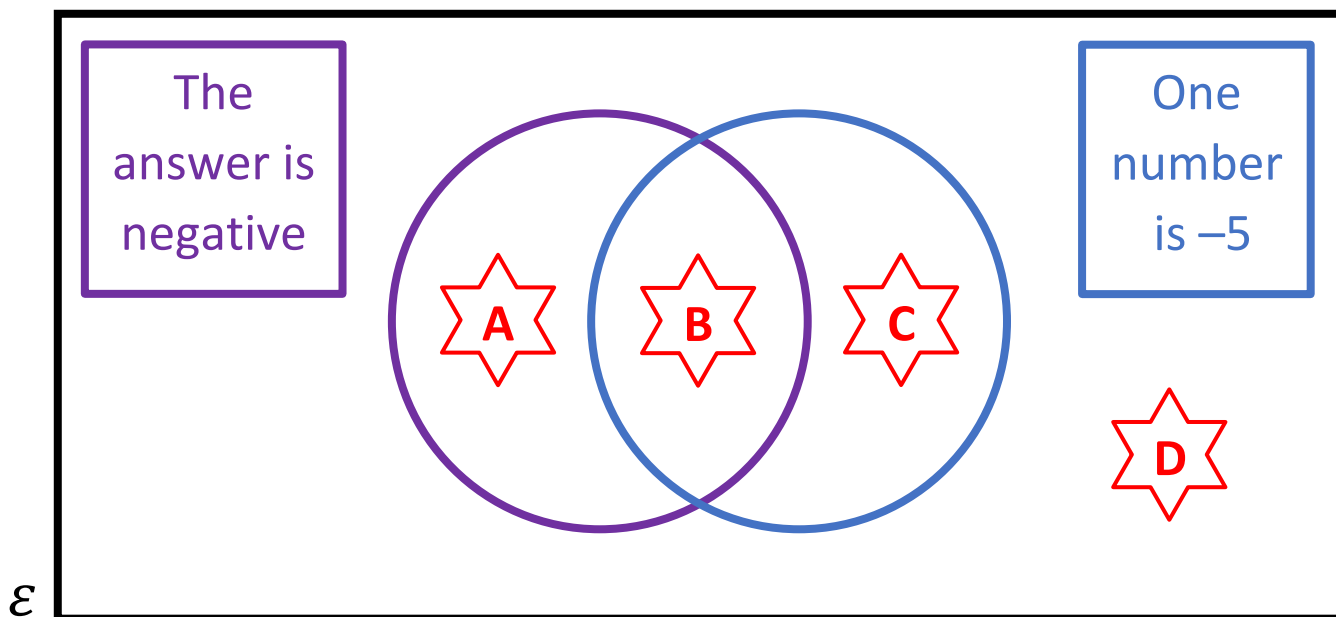
8) Solve the  
equation  
 $4x - 3 = 41$

9) Which is  
longer?  
1 metre or  
1 yard?

\_\_\_ out of 9



Venn Diagram Challenge 1



Think of a multiplication sum  $a \times b$  that could fit into each region. If you think a region is impossible to fill, explain why!











## Example 2



Expand and simplify the following expression.

$$(x + 5)(x + 3) - (x + 7)(x - 2)$$

$$\begin{aligned} & (x+5)(x+3) - (x+7)(x-2) \\ &= (x^2 + 3x + 5x + 15) - (x^2 - 2x + 7x - 14) \\ &= (x^2 + 8x + 15) - (x^2 + 5x - 14) \\ &= \cancel{x^2} + 8x + 15 - \cancel{x^2} - 5x + 14 \\ &= \underline{3x + 29} \end{aligned}$$





## Quiz 3



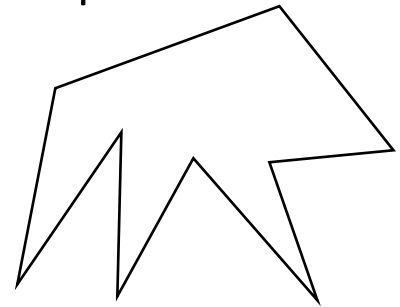
1)  $\sqrt[3]{27}$

2) Circle all the multiples of 3.

54   76   81   94

105   145   187

3) Name this shape.



4) Solve the equation  $\frac{x+2}{3} = 5$ .

5) Write the reciprocal of  $\frac{4}{5}$  as a mixed number.

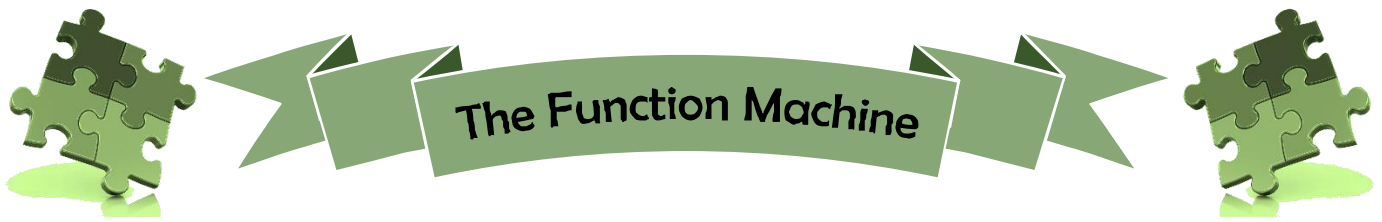
6) Simplify the ratio 21 : 28.

7) Write 65% as a decimal.

8) Write 65% as a fraction.

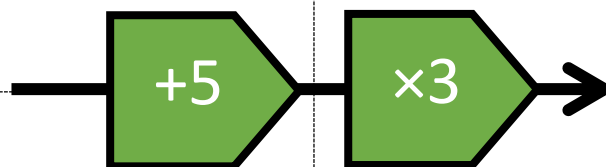
9) Simplify your answer to question 8.

\_\_\_ out of 9



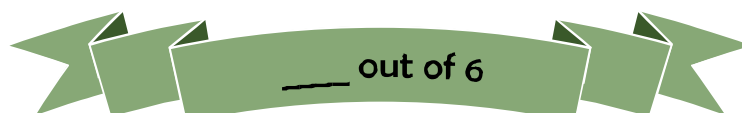
1) What is the output if the input is 2.5?

2) What is the input if the output is 24?



3) The input is a prime number and the output is a square number. What is the input and output?

4) What is the  $n$ th term of the sequence generated by this function machine?





### Example 3



Solve the equation  $\frac{4x+2}{2} = \frac{2x-5}{3}$ .

$$\frac{4x+2}{2} = \frac{2x-5}{3}$$

$$4x+2 = \frac{2(2x-5)}{3} \quad [\text{Multiply by 2}]$$

$$3(4x+2) = 2(2x-5) \quad [\text{Multiply by 3}]$$

$$12x+6 = 4x-10 \quad [\text{Expand}]$$

$$8x+6 = -10 \quad [\text{Subtract } 4x]$$

$$8x = -16 \quad [\text{Subtract 6}]$$

$$x = -2 \quad [\text{Divide by 8}]$$





## Quiz 4

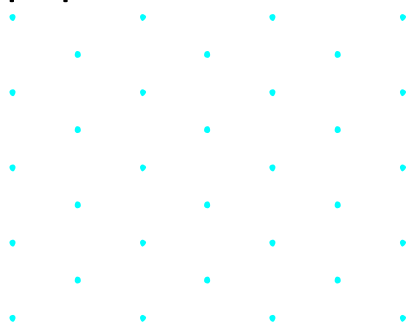


1) Change  $3\frac{2}{5}$  to be an improper fraction.

2) The diameter of a circle is 9 cm. What is the radius of the circle?

3) Expand  $-2(x - 4)$ .

4) Draw a cube on the isometric paper below.



5)  $5^3$

6)  $8.2 - 1.65$

7) Write the time 12:45 am in the 24-hour clock.

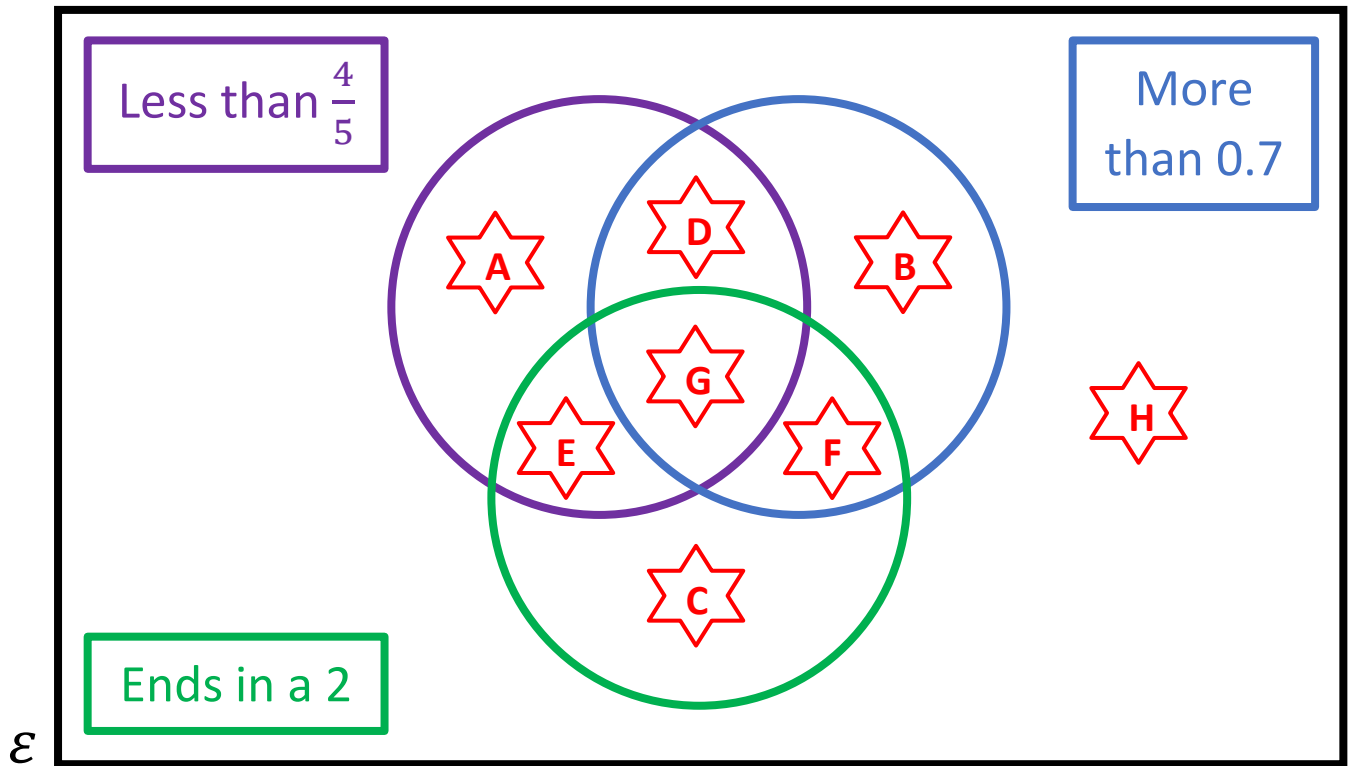
8) Write 0.4 as a percentage.

9)  $\frac{2}{3} + \frac{3}{5}$

\_\_\_ out of 9



# Venn Diagram Challenge 2



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

★ A		★ E	
★ B		★ F	
★ C		★ G	
★ D		★ H	



### Example 4



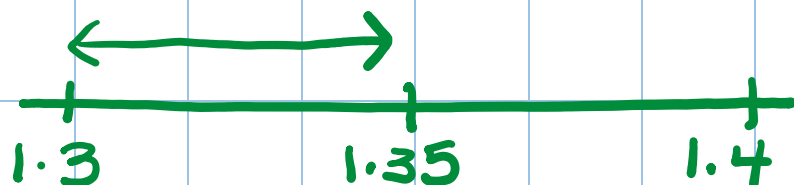
The equation  $x^2 + 4x - 7 = 0$  has a solution between  $x = 1$  and  $x = 2$ . Use the trial and improvement method to find this solution correct to one decimal place.

Trial	Answer	Too high/Too low?
1	-2	Too high
2	5	Too high
1.3	-0.11	Too low
1.4	0.56	Too high
1.35	0.2225	Too high

The actual solution to the equation is between  $x = 1.3$  and  $x = 1.35$ .

To one decimal place, the solution is

$x = 1.3$







## Quiz 5



1) Simplify the ratio 4 : 20.

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

3)  $\frac{4}{5} - \frac{3}{4}$

4) What is the  $n$ th term of the sequence 17, 15, 13, 11, ...?

5) Expand  $6(2 - x)$ .

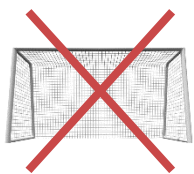
6) Change the fraction  $\frac{7}{2}$  to be a mixed number.

7) How many days are in April?

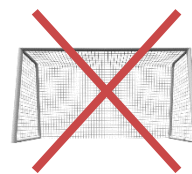
8)  $2^2 + 2^3$

9) The median of 6, 2, 1, 7, 5.

\_\_\_ out of 9



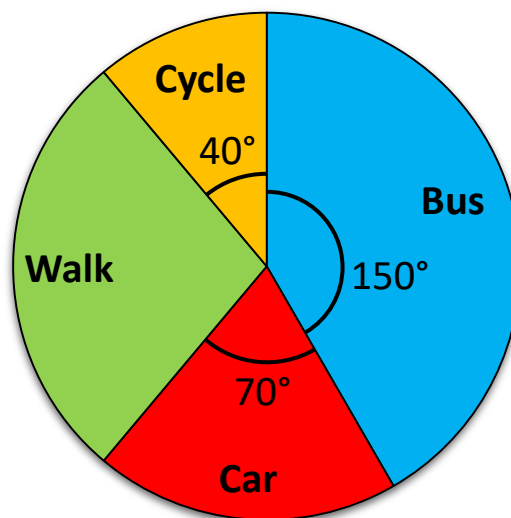
# Travelling to School



The pie chart shows how learners in year 11 travel to school.

50 learners in year 11 walk to school.

What can you calculate from this information?



## Evaluating the Workbook



## Notes



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**Working**

**with Money**

**Additional Tasks**



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Missing Number	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
The Right-Angled Triangle	19



## Quiz 1



1)  $\frac{2}{3}$  of \$18

2) Share £20 between Arwyn and Carys according to the ratio 2 : 3.

3) Change  $\frac{7}{3}$  to be a mixed number.4) Simplify the fraction  $\frac{48}{60}$ .

5) The reciprocal of 7 =

6)  $\frac{4}{7} + \frac{2}{7}$

7)  $\frac{3}{4} + \frac{3}{8}$

8)  $\frac{3}{4} \times \frac{3}{8}$

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

\_\_\_ out of 9



## Example 1



Find the median class for the following data that shows the height of plants in a garden.

Height, $h$ cm	Frequency	Cumulative Frequency
$0 \leq h < 10$	3	3
$10 \leq h < 20$	5	8
$20 \leq h < 30$	7	15
$30 \leq h < 40$	3	18

$$3 + 5 + 7 + 3 = 18$$

18 is an even number so there are 2 data items in the middle of the data.

$$18 \div 2 = 9. \quad \left. \begin{array}{l} 9 + 1 = 10 \end{array} \right\} \text{Data items 9 and 10 are in the middle.}$$

8 is less than 9, and  
 $\checkmark$  15 is greater than 10

Looking at the cumulative frequency column, we see that the median class is  $20 \leq h < 30$ .



## Exercise 1



Find the median class for the following data that shows the height of plants in a garden.

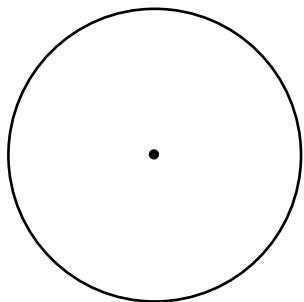
Height, $h$ cm	Frequency
$0 \leq h < 10$	6
$10 \leq h < 20$	18
$20 \leq h < 30$	11
$30 \leq h < 40$	5



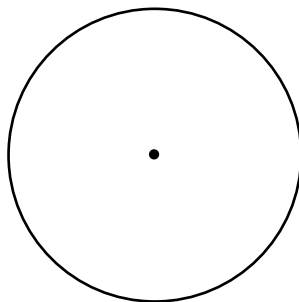
## Quiz 2



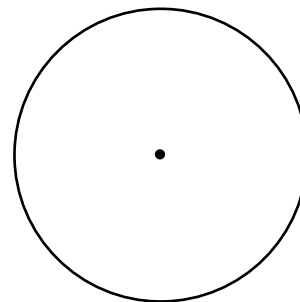
1) Add a radius to the circle below.



2) Add a segment to the circle below.



3) Add a tangent to the circle below.

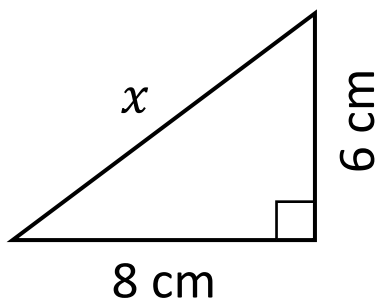


4) Calculate the circumference of a circle with diameter 7.3 cm.

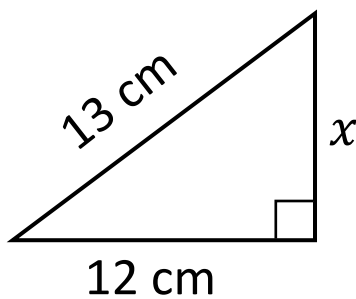
5) Calculate the area of a circle with radius 2.5 m.

6) Calculate the radius of a circle with area  $42 \text{ cm}^2$ .

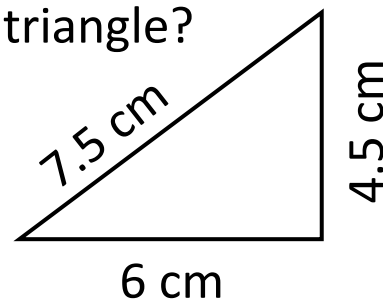
7) Calculate  $x$ .



8) Calculate  $x$ .



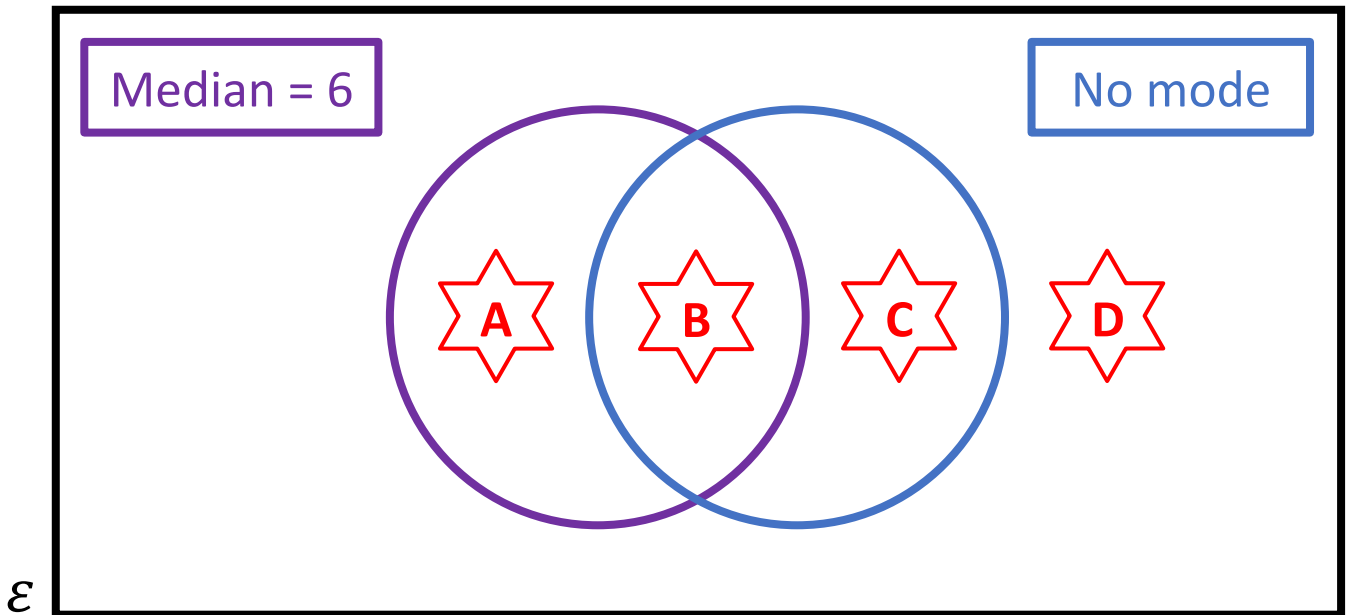
9) Is this triangle a right-angled triangle?



\_\_\_ out of 9



Venn Diagram Challenge 1



Think of **4** numbers that could fit into each region.  
 If you think a region is impossible to fill, explain why!









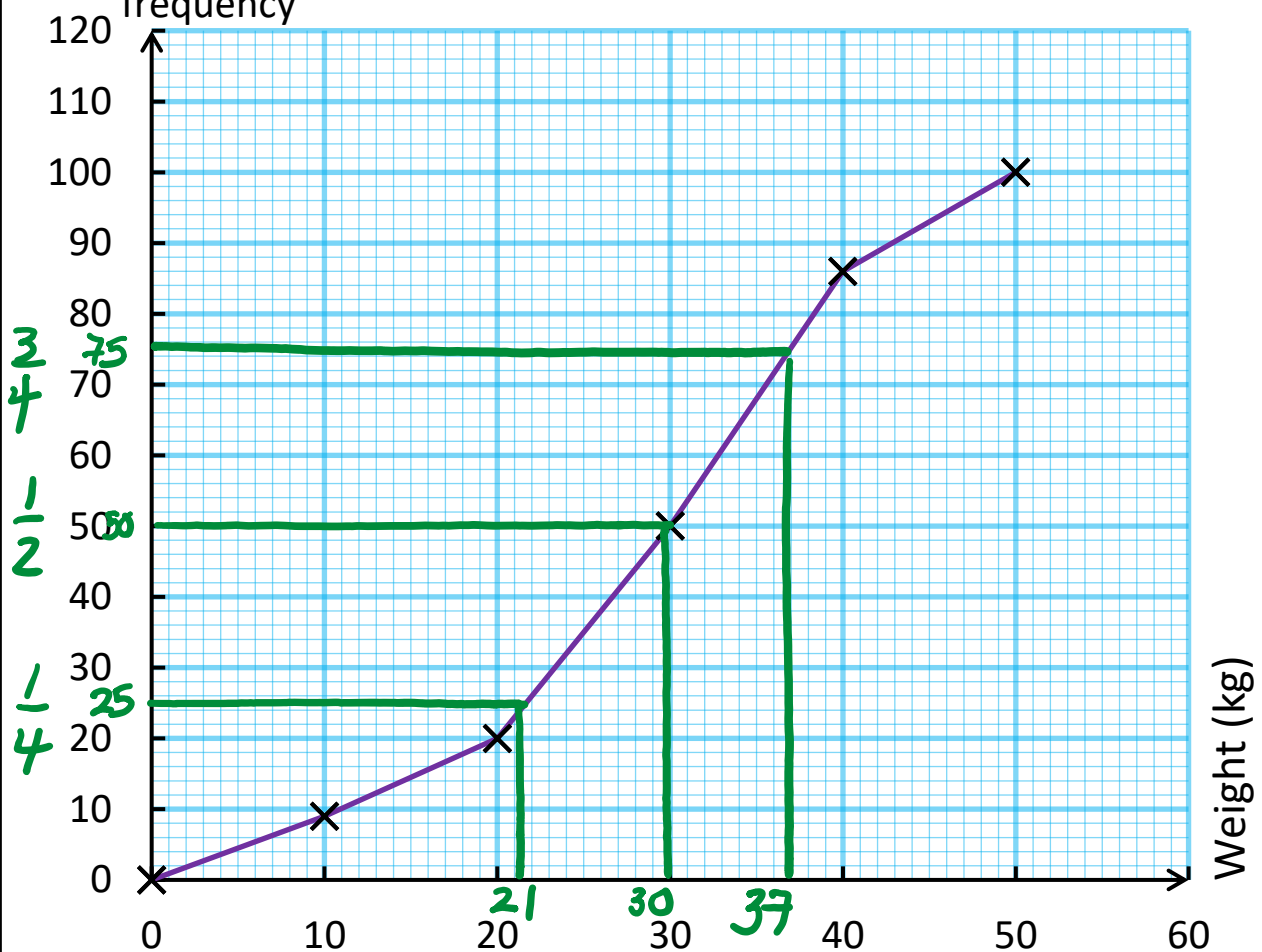


## Example 2



Use the cumulative frequency diagram to estimate the median and interquartile range of the following data.

Cumulative frequency diagram to show the  
Cumulative frequency weight of a set of parcels



Estimate of the median = 30Kg

Estimate of the interquartile range:

$$37 - 21 = 16\text{Kg}$$

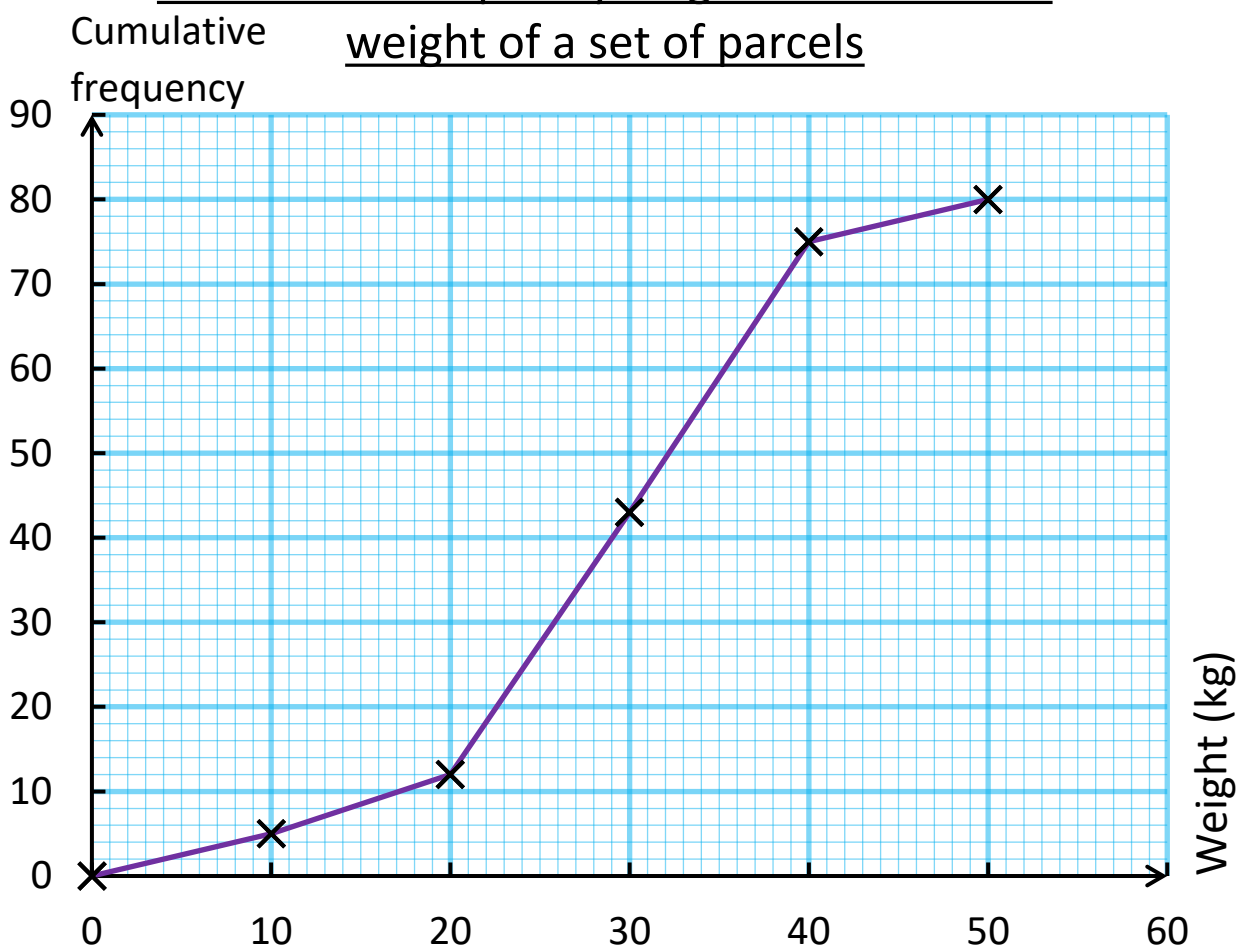


## Exercise 2



Use the cumulative frequency diagram to estimate the median and interquartile range of the following data.

Cumulative frequency diagram to show the weight of a set of parcels



\_\_\_\_\_ out of 4



## Quiz 3



1) What is the $n$ th term of the sequence 54, 57, 60, 63, ...?	2) What is the 100th term of the sequence 54, 57, 60, 63, ...?	3) Does the number 456 belong to the sequence 54, 57, 60, 63, ...?
4) Expand $5(x + 7)$	5) Expand $-3y(y - 4)$	6) Expand $(x + 7)(x - 2)$
7) Solve $\frac{x}{2} - 3 = 4$	8) Solve $\frac{y+2}{3} = 6$	9) Solve $(x - 4)(x + 1) = 0$

\_\_\_\_ out of 9



## The Missing Number



1) Which value for  $x$  would make the mode of the data set 8?

2) Which value for  $x$  would make the range of the data set 11?

**10, 8, 3, 2, 5,  $x$**

3) Which value for  $x$  would make the median of the data set 6?

4) Which value for  $x$  would make the mean of the data set 6?

\_\_\_ out of 5



### Example 3



Two fair dice are rolled. The two numbers that are shown are **multiplied** together to obtain the score.

(a) Complete the following table to show all the possible scores.

		Second die					
		1	2	3	4	5	6
First die	1	1	2	3	4	5	6
	2	2	4	6	8	10	12
	3	3	6	9	12	15	18
	4	4	8	12	16	20	24
	5	5	10	15	20	25	30
	6	6	12	18	24	30	36

(b) What is the probability of obtaining a score of 15 or more?

(c) If the two dice were rolled 360 times, how many times would you expect to obtain a score of 15 or more?

$$(b) \frac{13}{36} \quad (c) \frac{13}{36} \times 360 = 13 \times 10 = \underline{130} \text{ times.}$$





## Quiz 4



1) The median of  
8, 2, 7, 5, 8

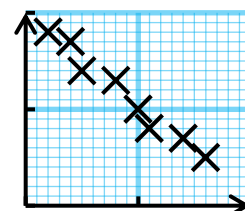
2) The median of  
8, 2, 6, 5

3) The median of  
6, 2, 8, 6

4) The interquartile  
range of  
1, 4, 5, 5, 6, 7, 9

5) The interquartile  
range of  
1, 4, 5, 6, 7, 7, 8, 9

6) What type of  
correlation is  
shown?



7) What is the  
probability of  
rolling an even  
number on a  
normal fair die?

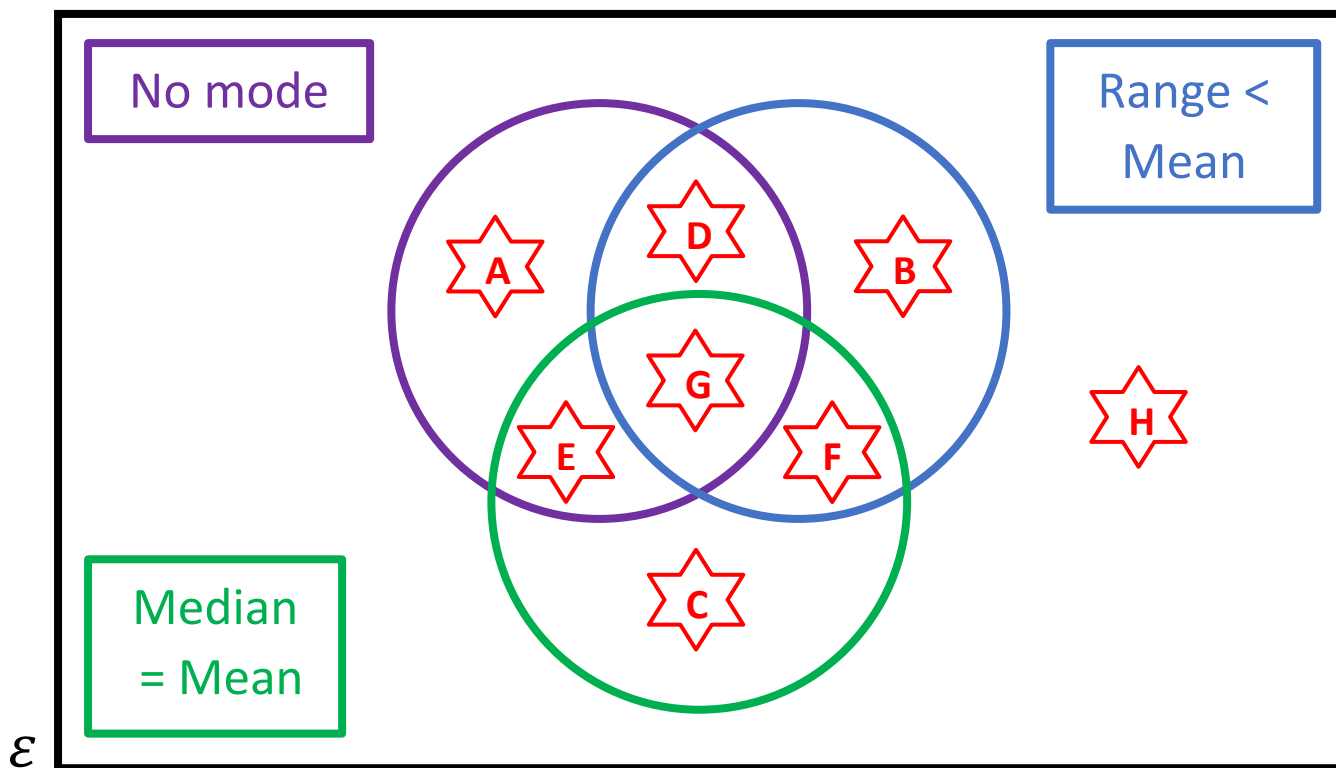
8) What is the  
probability of  
rolling a prime  
number on a  
normal fair die?

9) What is the  
probability of  
choosing a king  
from a standard  
deck of playing  
cards?

\_\_\_ out of 9



# Venn Diagram Challenge 2



Think of **5** numbers that could fit into each region.  
 If you think a region is impossible to fill, explain why!

★ A		★ E	
★ B		★ F	
★ C		★ G	
★ D		★ H	



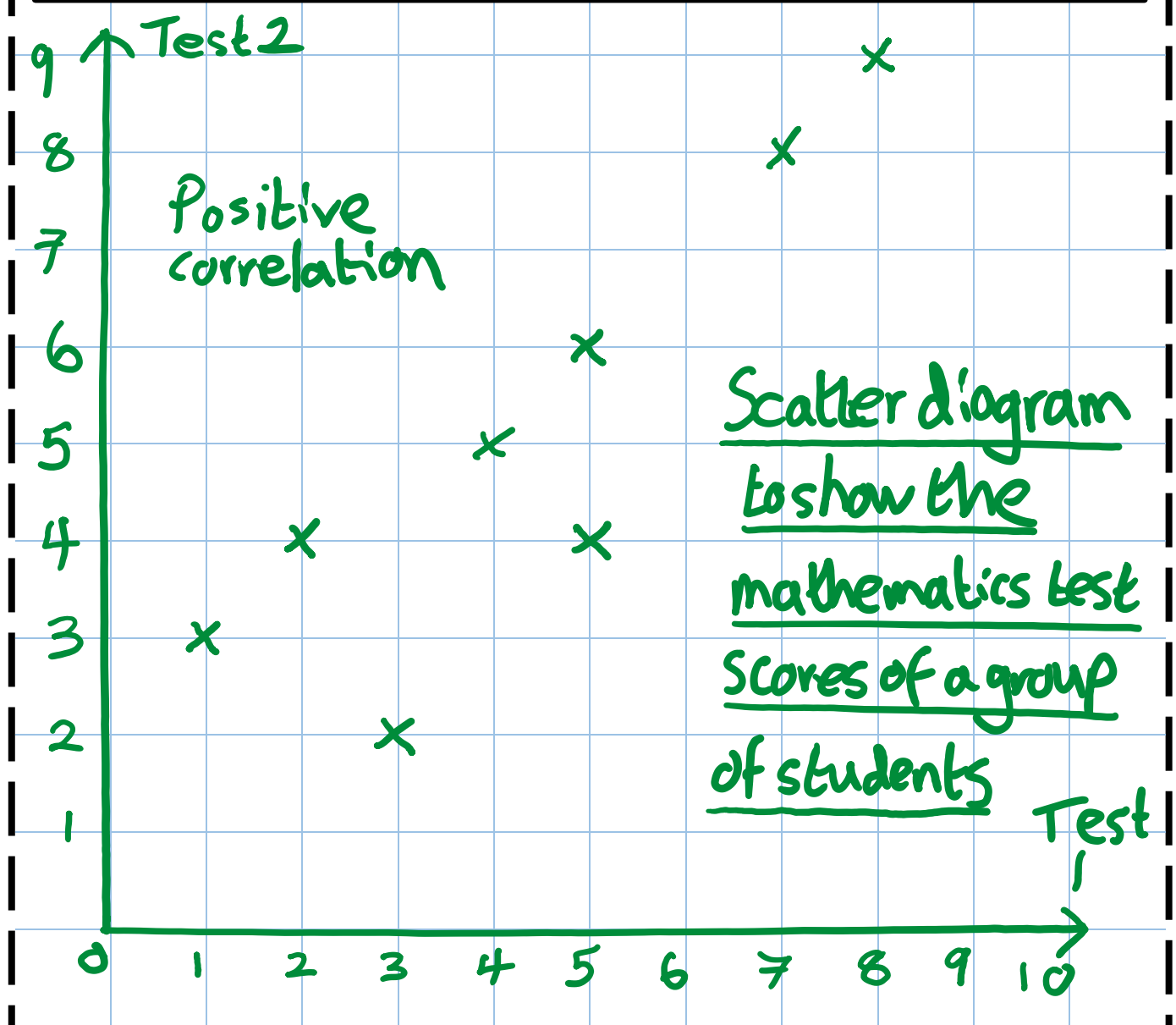
## Example 4



The following data shows the marks (out of 10) for a group of students in two mathematics tests.

Draw a scatter diagram for the data, noting which type of correlation is shown.

Test 1	5	8	1	3	7	5	2	4
Test 2	4	9	3	2	8	6	4	5





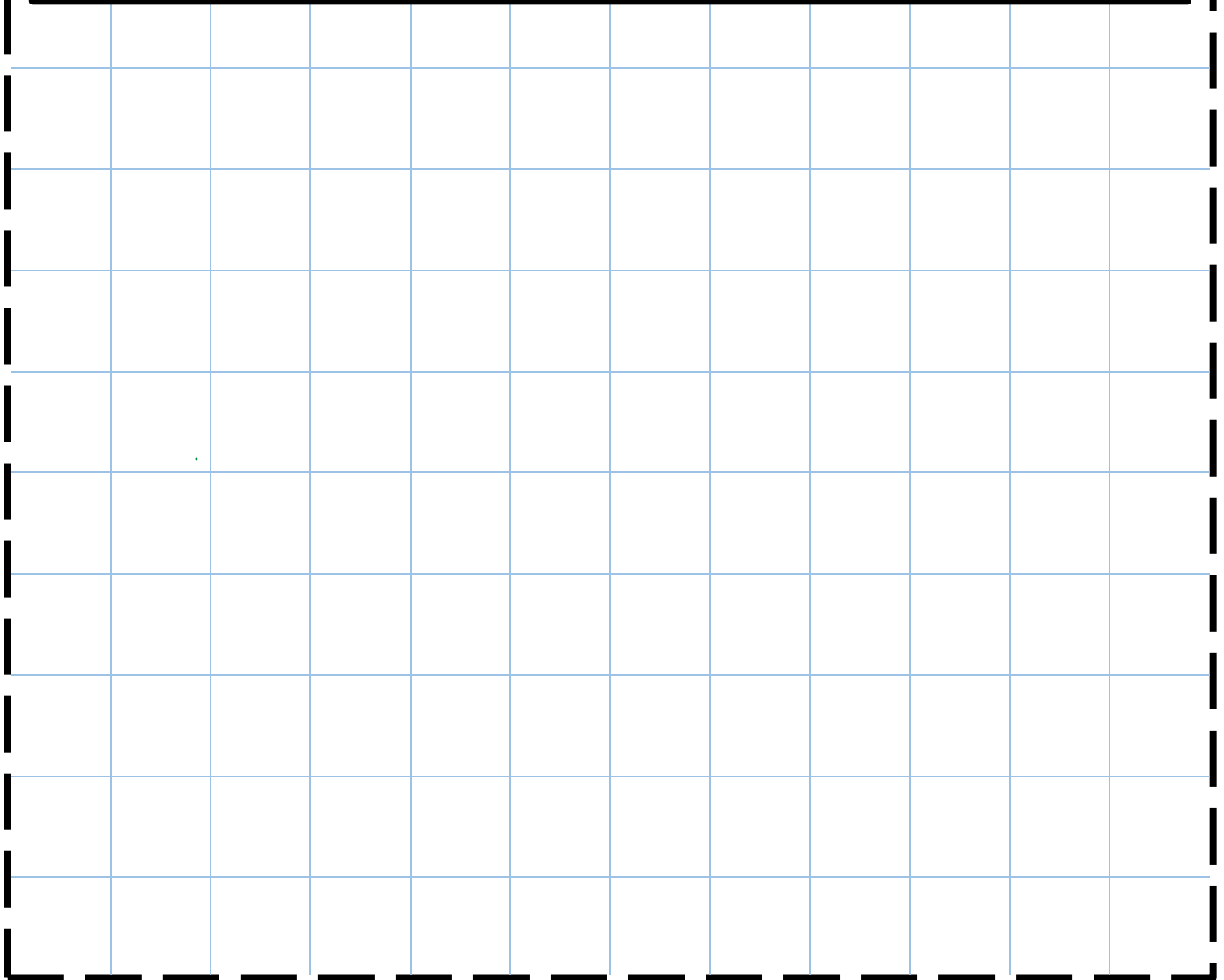
## Exercise 4



The following data shows the marks (out of 10) for a group of students in art and science tests.

Draw a scatter diagram for the data, noting which type of correlation is shown.

Art	8	2	5	9	1	3	2	7
Science	2	4	7	3	4	7	1	3



\_\_\_ out of 5



## Quiz 5



1)  $\frac{4}{5} - \frac{1}{2}$

2) Change  $3\frac{2}{7}$  to be an improper fraction.

3) What is the reciprocal of  $\frac{3}{7}$ ?

4) Calculate the circumference of a circle with radius 7.6 mm.

5) Write an estimate for the height of a 30 year old woman.

6) What is the  $n$ th term of the sequence 15, 12, 9, 6, 3, ...?

7) Expand  $2(5 - y)$

8) Solve the equation  $\frac{8}{x+2} = 4$

9) The median of 9, 2, 5, 6

\_\_\_ out of 9



## Evaluating the Workbook



## Notes



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**Straight Line**

**Graphs**

**Additional Tasks**



# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
The Football Field	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Cost of the Shoes	19



## Quiz 1



1) Circle the square numbers.  1 2 3 4 5 6 7 8 9 10	2) Circle the cube numbers.  1 2 3 4 5 6 7 8 9 10	3) Circle the prime numbers.  1 2 3 4 5 6 7 8 9 10
4) Sketch an isosceles triangle.	5) Sketch an equilateral triangle.	6) Sketch a scalene triangle.
7) Calculate 20% of £40.	8) Write 20% as a decimal.	9) Write 20% as a fraction, in its simplest form.

\_\_\_ out of 9



## Example 1

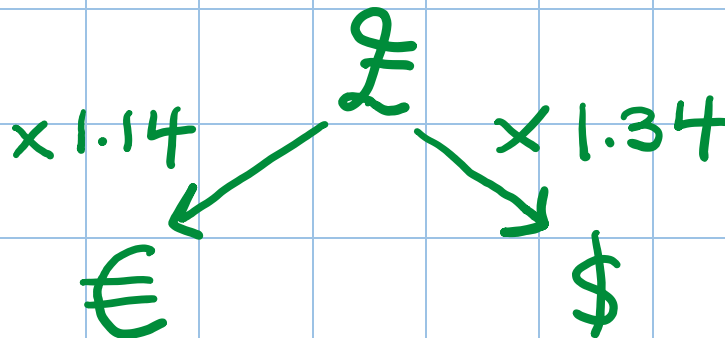


Catrin sees the following sign in a currency exchange shop.

$$£1 = €1.14$$

$$£1 = \$1.34$$

Use the above information to calculate how many dollars Catrin can exchange €150 for.



$$\begin{aligned}
 &€150 \div 1.14 \times 1.34 \\
 &= \$176.3157895 \\
 &= \$176.32 \text{ to the nearest cent.}
 \end{aligned}$$



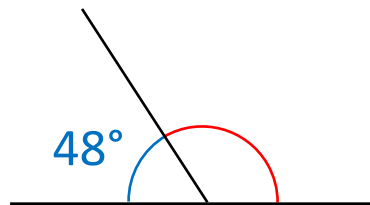


## Quiz 2

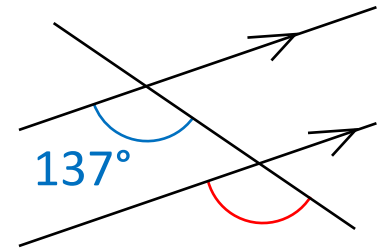


1) What type of angle is the angle  $96^\circ$ ?

2) Calculate the size of the red angle.



3) Calculate the size of the red angle.



4) The mean of 9, 2, 4, 2, 3.

5) The median of 9, 2, 4, 2, 3.

6) The mode of 9, 2, 4, 2, 3.

7)  $3.4 - 1.8$

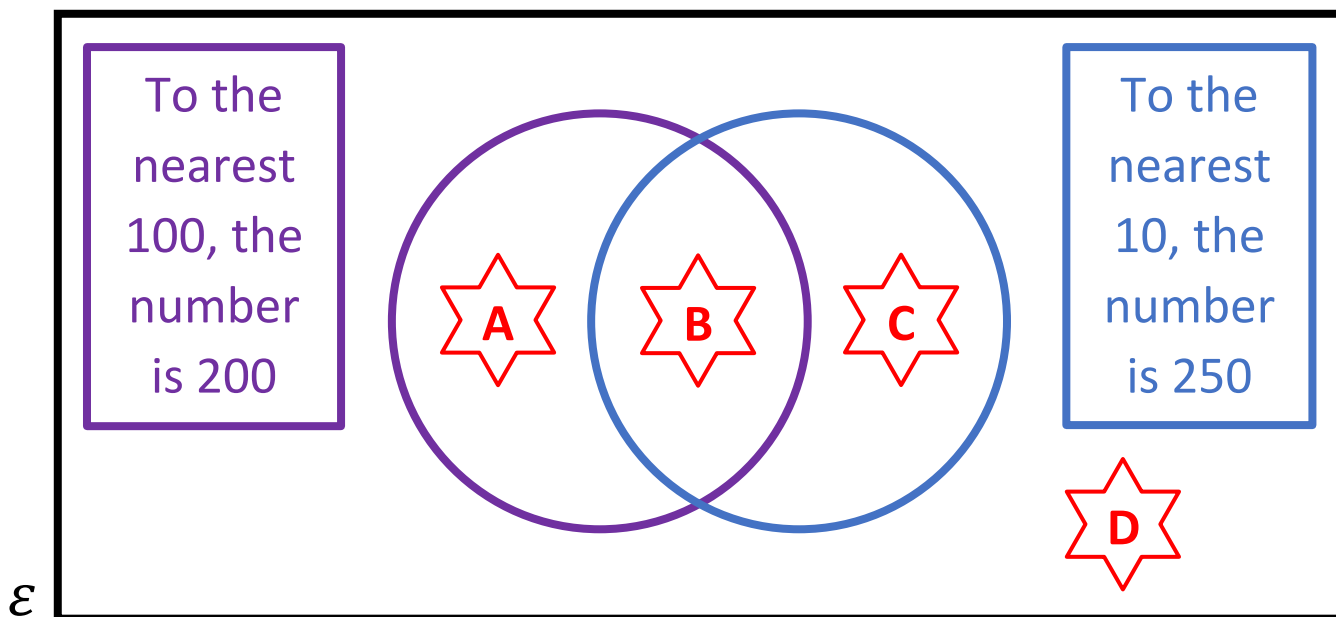
8)  $3.4 \times 7$

9)  $3.4 \div 100$

\_\_\_ out of 9



# Venn Diagram Challenge 1



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

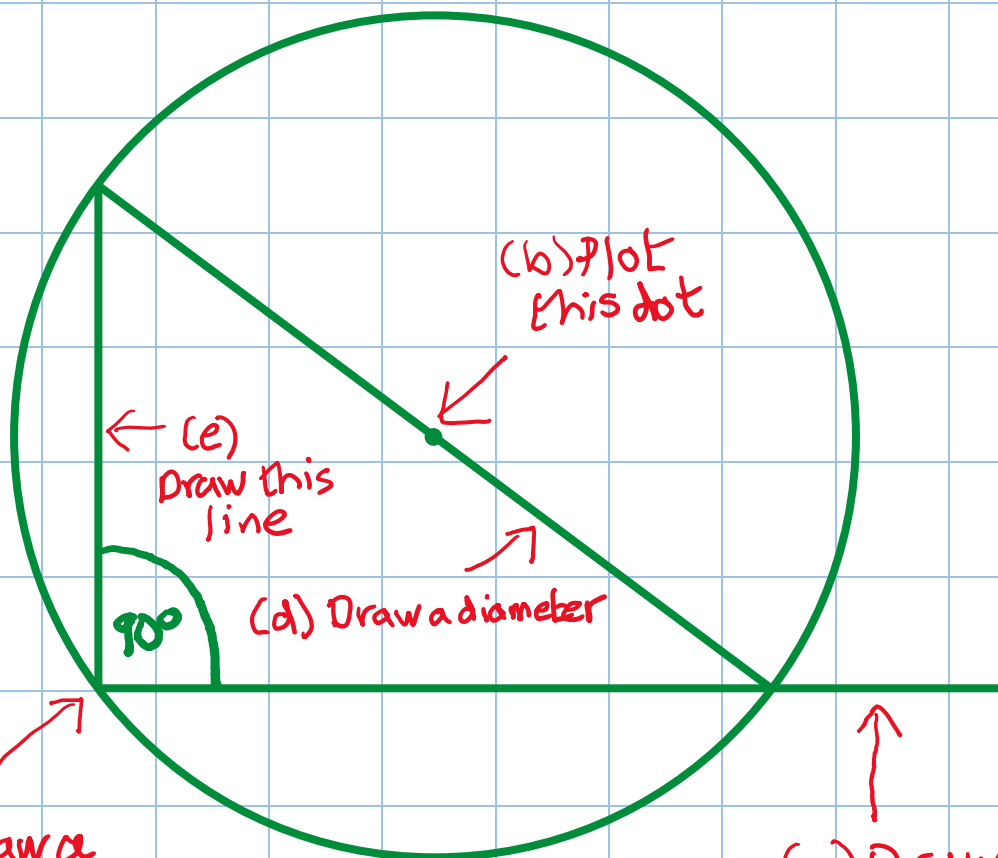




## Example 2



Using a compass and ruler only, draw an angle of  $90^\circ$ .



(b) Plot this dot

(e) Draw this line

(d) Draw a diameter

$90^\circ$

(c) Draw a circle where the compass point is on the dot from part (b) and the pencil starts from this point.

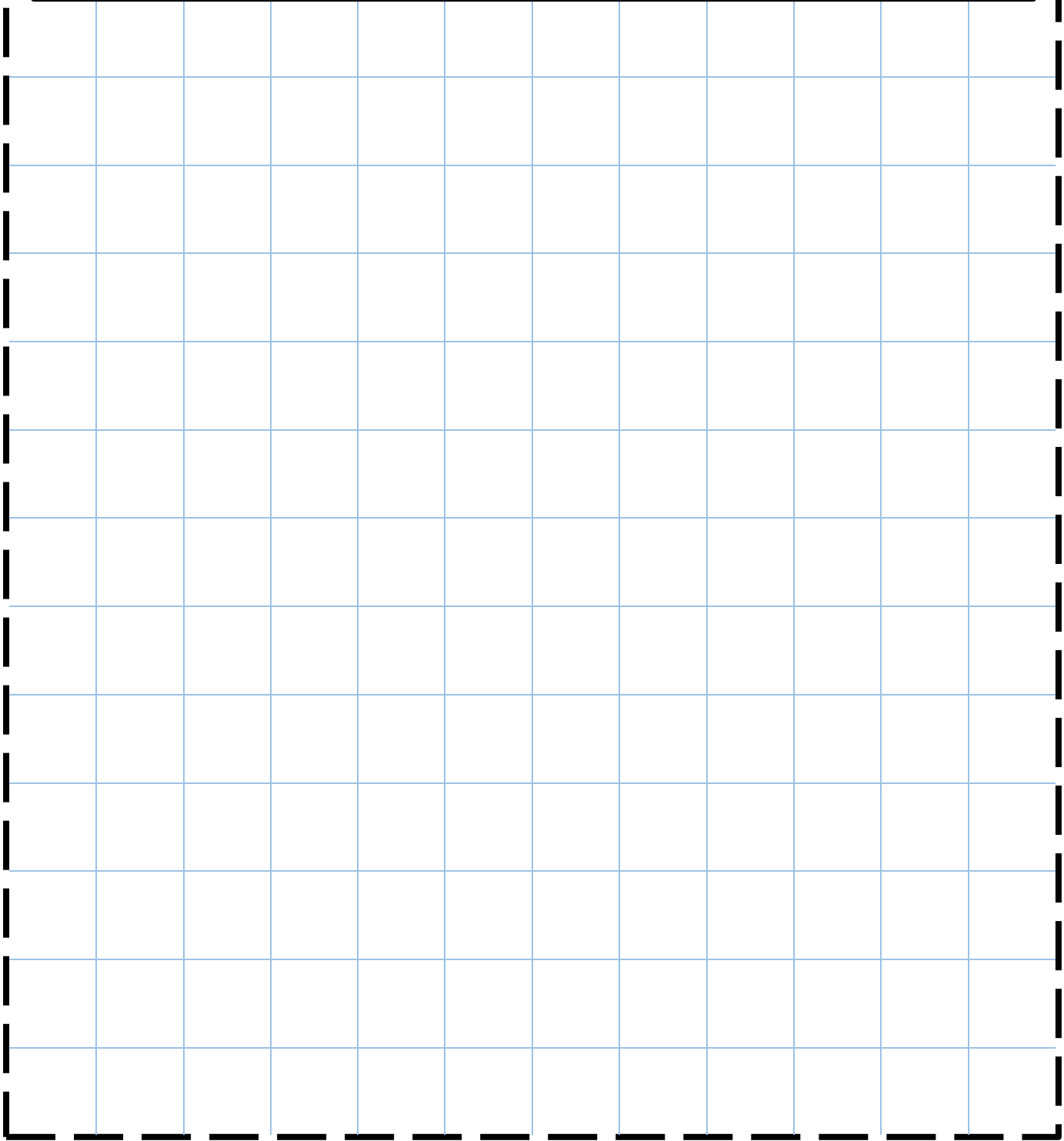
(a) Draw this line to start



## Exercise 2



Using a compass and ruler only, draw an angle of  $90^\circ$ .



\_\_\_ out of 2



## Quiz 3

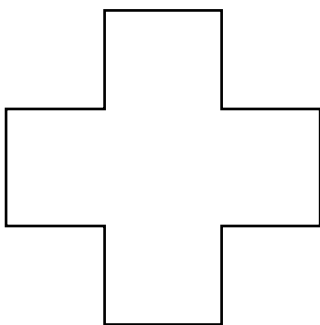


1) Write the time 12:00 am in the 24-hour clock.

2) How many days are in November?

3) Will the year 2432 be a leap year?

4) Shade 25% of the shape below.



5) Calculate  $\frac{3}{7}$  of £35.

6)  $54 + 4.72 + 0.8$

7)  $7 \times -3$

8)  $7 + -3$

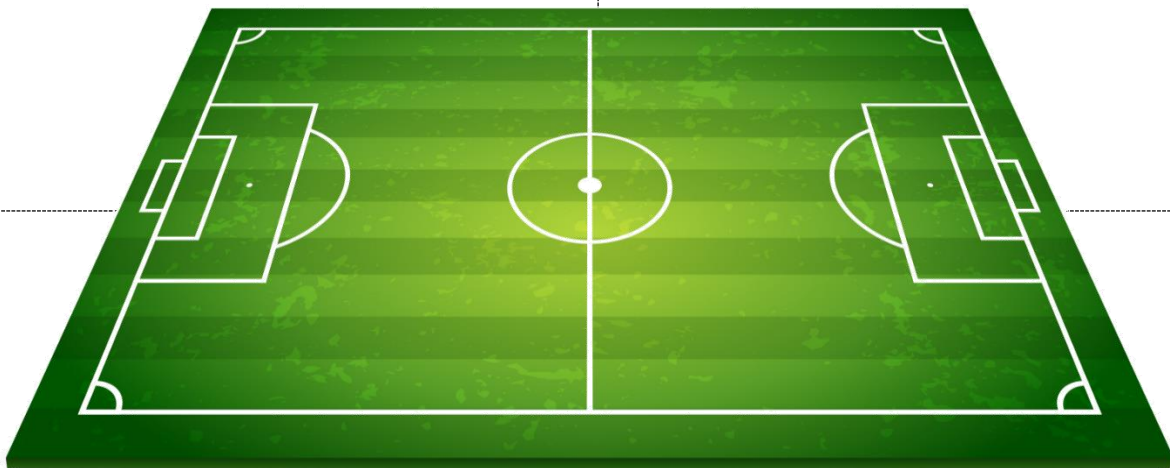
9)  $7 - -3$

\_\_\_ out of 9



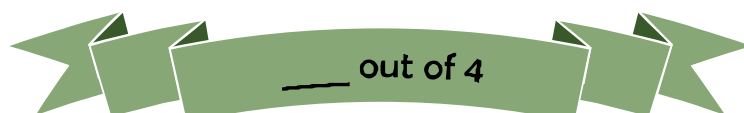
1) The length and width of the football field is 90 m and 50 m. What is the perimeter of the field?

2) On the day of the game the stadium was 80% full. If the stadium's capacity is 100,000, how many supporters were watching the game?



3) How many arcs can be seen on a football field?

4) What is the distance from the centre of the field to one of the corners?

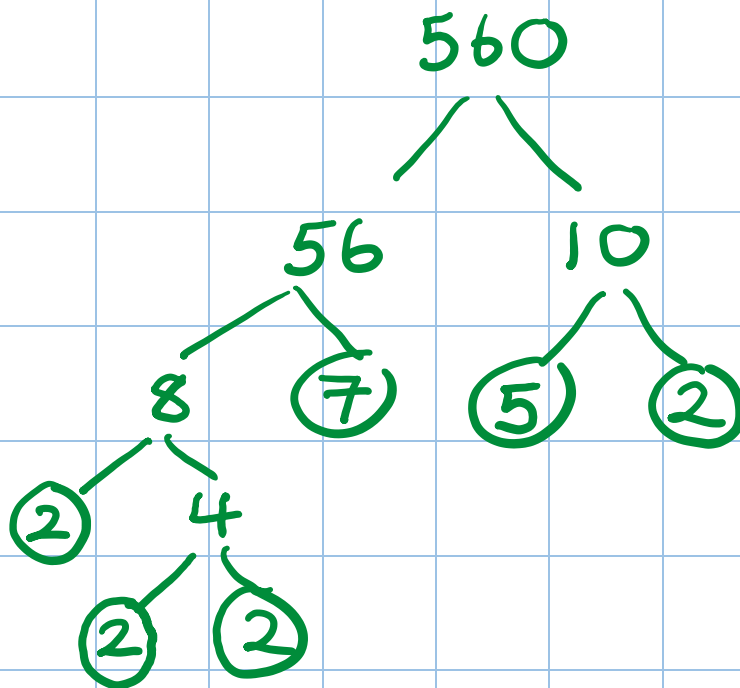




### Example 3



What is the smallest number you can divide 560 by in order to change it to be a square number?



$$560 = 2 \times 2 \times 2 \times 2 \times 5 \times 7$$

$$560 = 2^4 \times 5^1 \times 7^1$$

560 is not a square number as the indices 1 and 1 are odd numbers.

We must divide 560 by  $5 \times 7 = \underline{35}$   
to change it to be a square number.





## Quiz 4



1)  $6 \times 12$

2)  $6 - 12$

3)  $6 \div 12$

4)  $6^2$

5) 6% of 500

6) Simplify the fraction  $\frac{6}{24}$ .

7) Write 6% as a decimal.

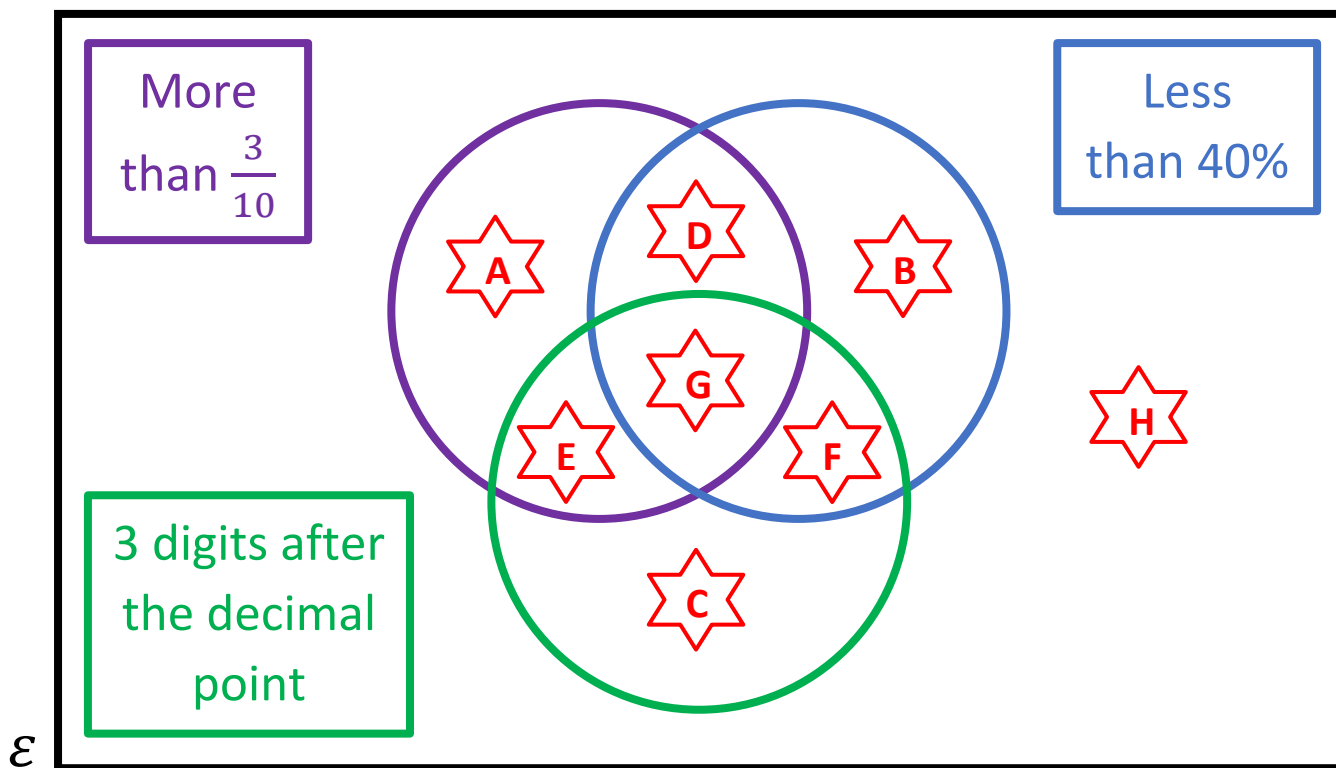
8)  $6 \div 10$

9) What is the name of a polygon with 6 edges?

\_\_\_ out of 9



# Venn Diagram Challenge 2



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

★ A		★ E	
★ B		★ F	
★ C		★ G	
★ D		★ H	

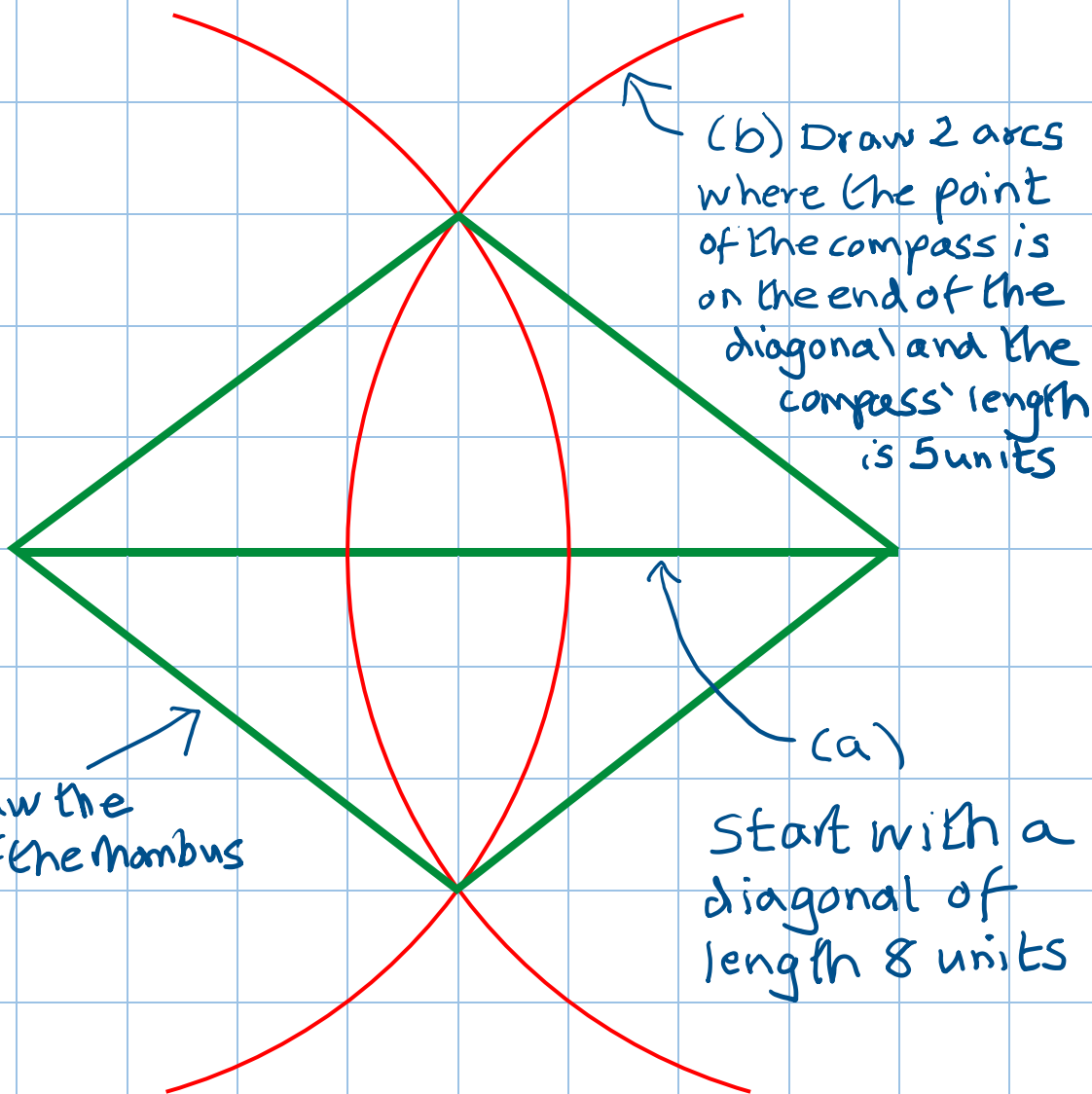


## Example 4



Using the grid below, draw a rhombus where

- the length of the longest diagonal is 8 units;
- the rhombus has edges of length 5 units.



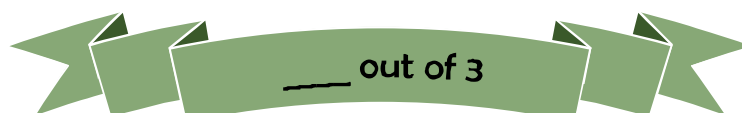


## Exercise 4



Using the grid below, draw a rhombus where

- the length of the longest diagonal is 7 units;
- the rhombus has edges of length 4 units.





## Quiz 5



1)  $\sqrt{64}$

2) What is the  $n$ th term of the sequence  
 $-25, -23, -21,$   
 $-19, -17, \dots$

3) Solve the equation  
 $2x = 36$

4) Simplify the ratio 40 : 60.

5)  $20 - 4.59$

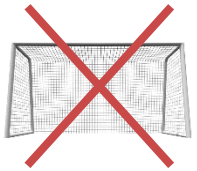
6) List all the factors of 42.

7) How many pennies are in £2.40?

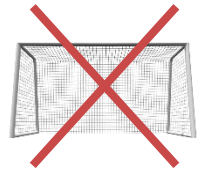
8)  
 5 cm = \_\_\_\_\_ mm  
 4 kg = \_\_\_\_\_ g  
 1 stone = \_\_\_\_\_  
 pounds  
 1 inch  $\approx$  \_\_\_\_\_  
 cm

9) 43 minutes before 3:24 pm.

\_\_\_\_\_ out of 12



## Cost of the Shoes



The same pair of shoes are sold in London, Paris and Geneva. The cost of the shoes is

£136 in London, €174 in Paris, and 189 Swiss francs in Geneva.

The exchange rates are  $\text{£}1 = \text{€}1.27$  and  $\text{£}1 = 1.39$  Swiss francs. What can you calculate from this information?

## Evaluating the Workbook



## Notes



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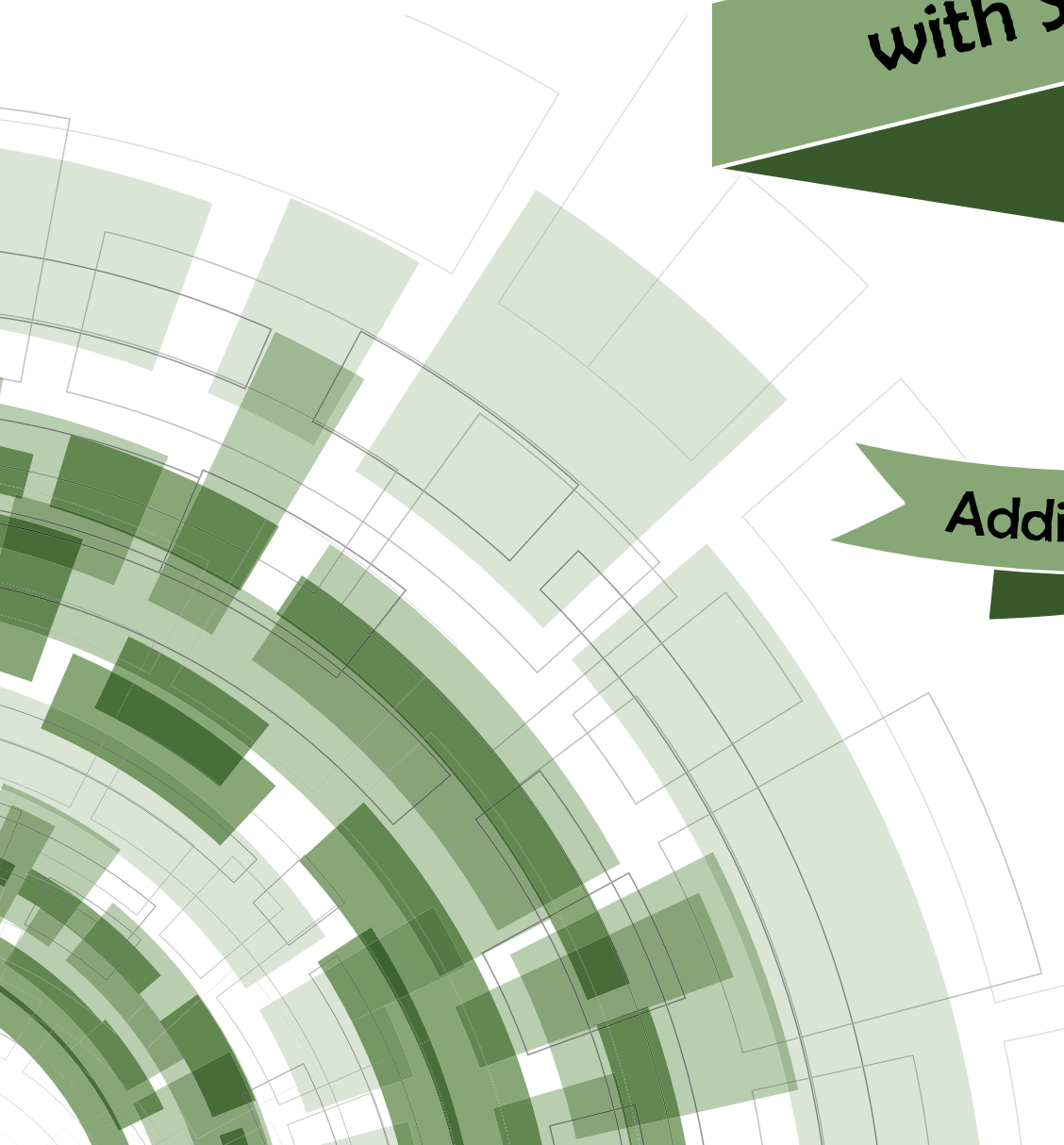
Name: \_\_\_\_\_



**Movement**

**with Sphero**

**Additional Tasks**





# Contents

<b>Activity</b>	<b>Page</b>
Quiz 1	3
Example–Problem Pair 1	4–5
Quiz 2	6
Venn Diagram Challenge 1	7
Example–Problem Pair 2	8–9
Quiz 3	10
Co-ordinates	11
Example–Problem Pair 3	12–13
Quiz 4	14
Venn Diagram Challenge 2	15
Example–Problem Pair 4	16–17
Quiz 5	18
Quiz 6	19



## Quiz 1



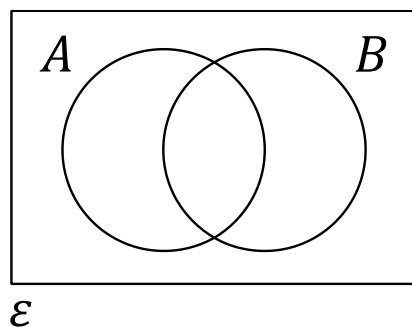
1)  $\sqrt{25}$

2) Circle the prime numbers.

41 42 43 44 45

46 47 48 49 50

3) Shade  $A \cap B$ .



4) Simplify

$$7x - 2y + 3x - 5y$$

5) Substitute  $x = 5$  into the expression  $4x + 9$ .

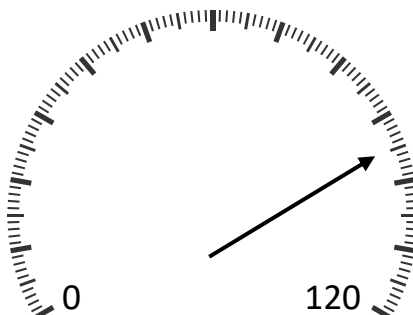
$$4x + 9$$

6) Solve the equation

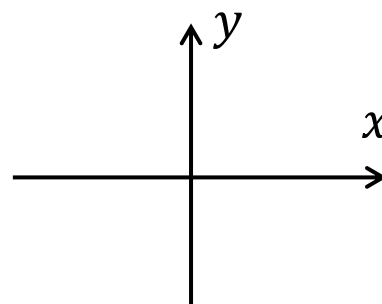
$$6x - 3 = 21$$

7) What is the formula for calculating the area of a triangle?

8) The arrow points towards...



9) Label the quadrants.



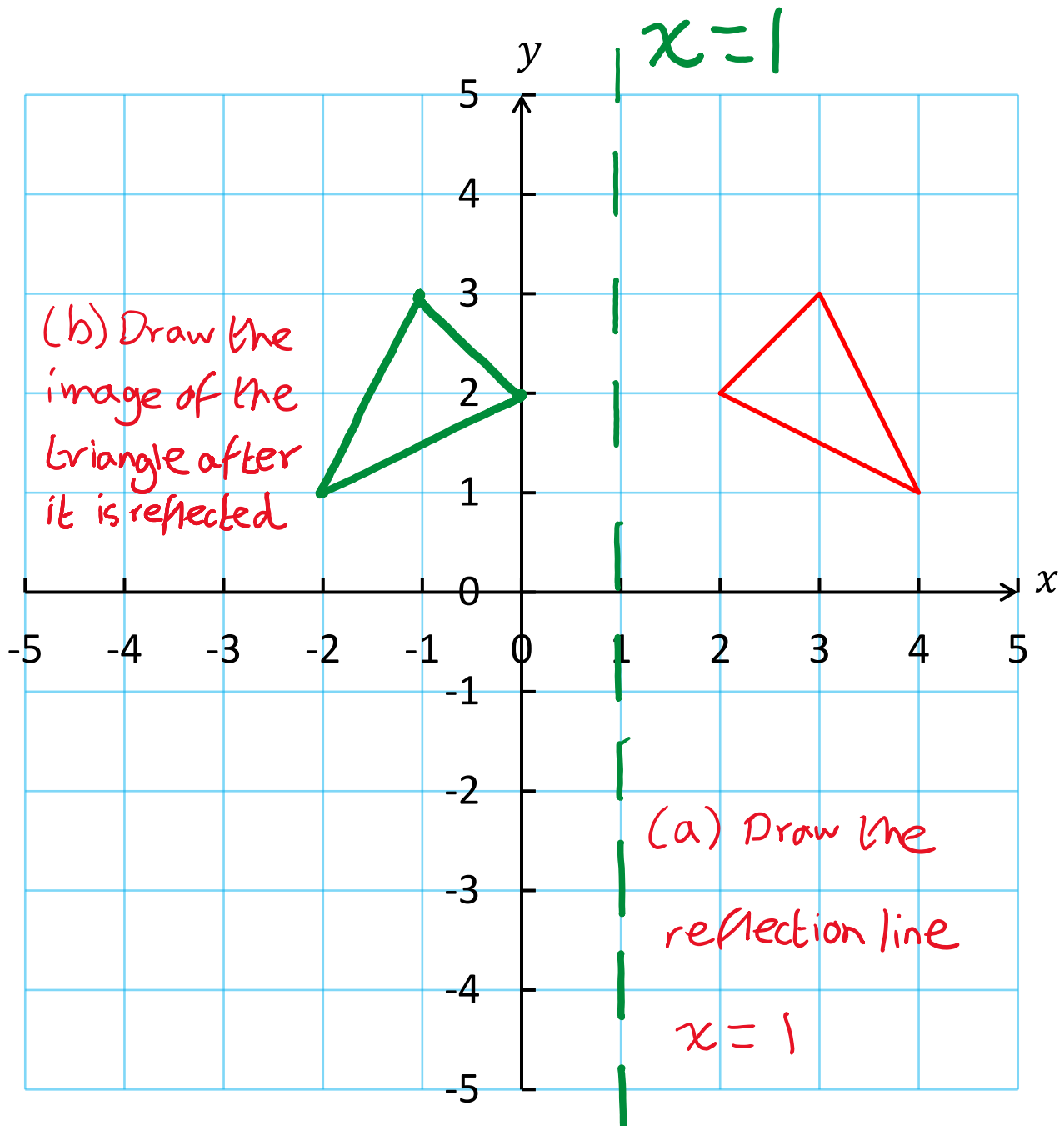
\_\_\_ out of 9



## Example 1



Reflect the triangle below in the line  $x = 1$ .

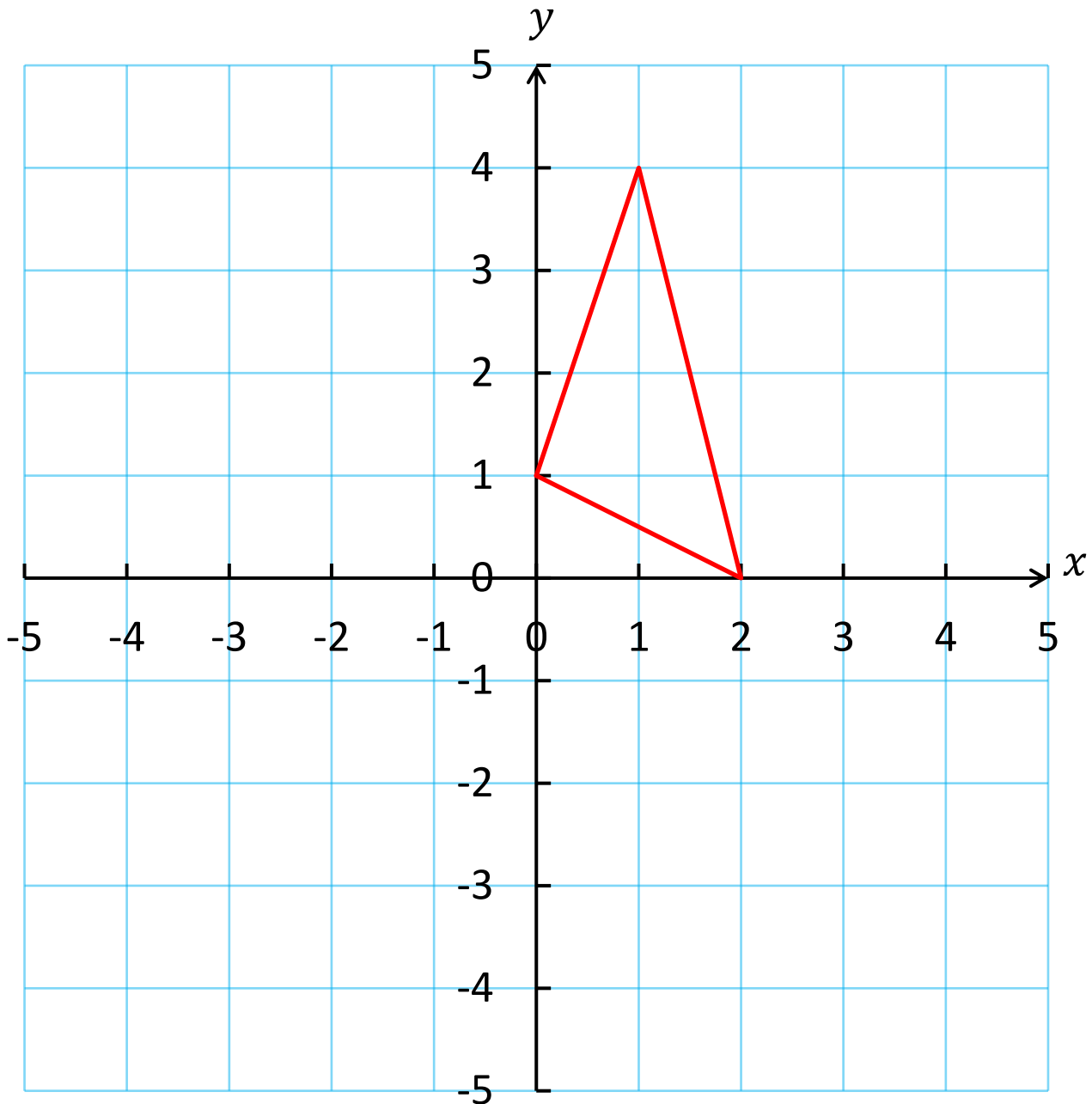




## Exercise 1



Reflect the triangle below in the line  $x = -1$ .



\_\_\_ out of 2



## Quiz 2



1) Sketch a rhombus.

2) Sketch a trapezium.

3) Sketch an arrowhead.

4) The mode of 9, 3, 5, 2, 3, 2

5) The range of 9, 3, 5, 2, 3, 2

6) The median of 9, 3, 5, 2, 3, 2

7)  $4^2 + 2^3$

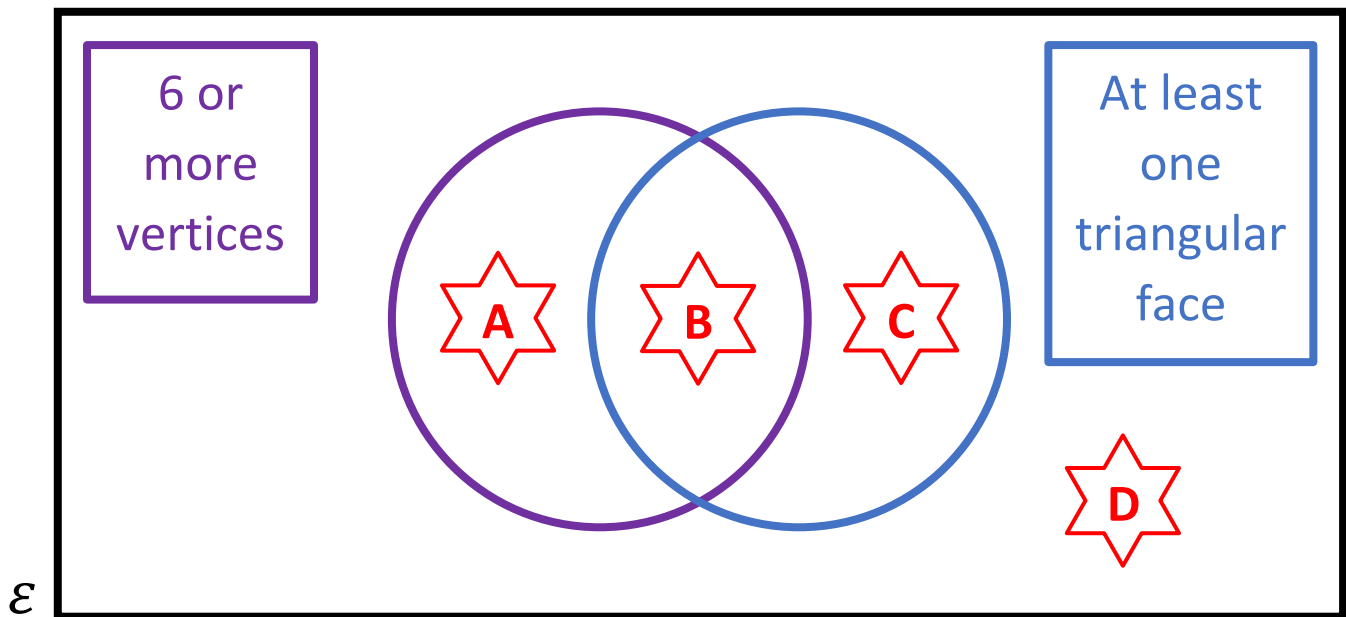
8) 40% of £90

9)  $\frac{5}{6} - \frac{1}{4}$

\_\_\_ out of 9



# Venn Diagram Challenge 1



Think of a 3-D shape that could fit into each region.  
If you think a region is impossible to fill, explain why!











## Example 2

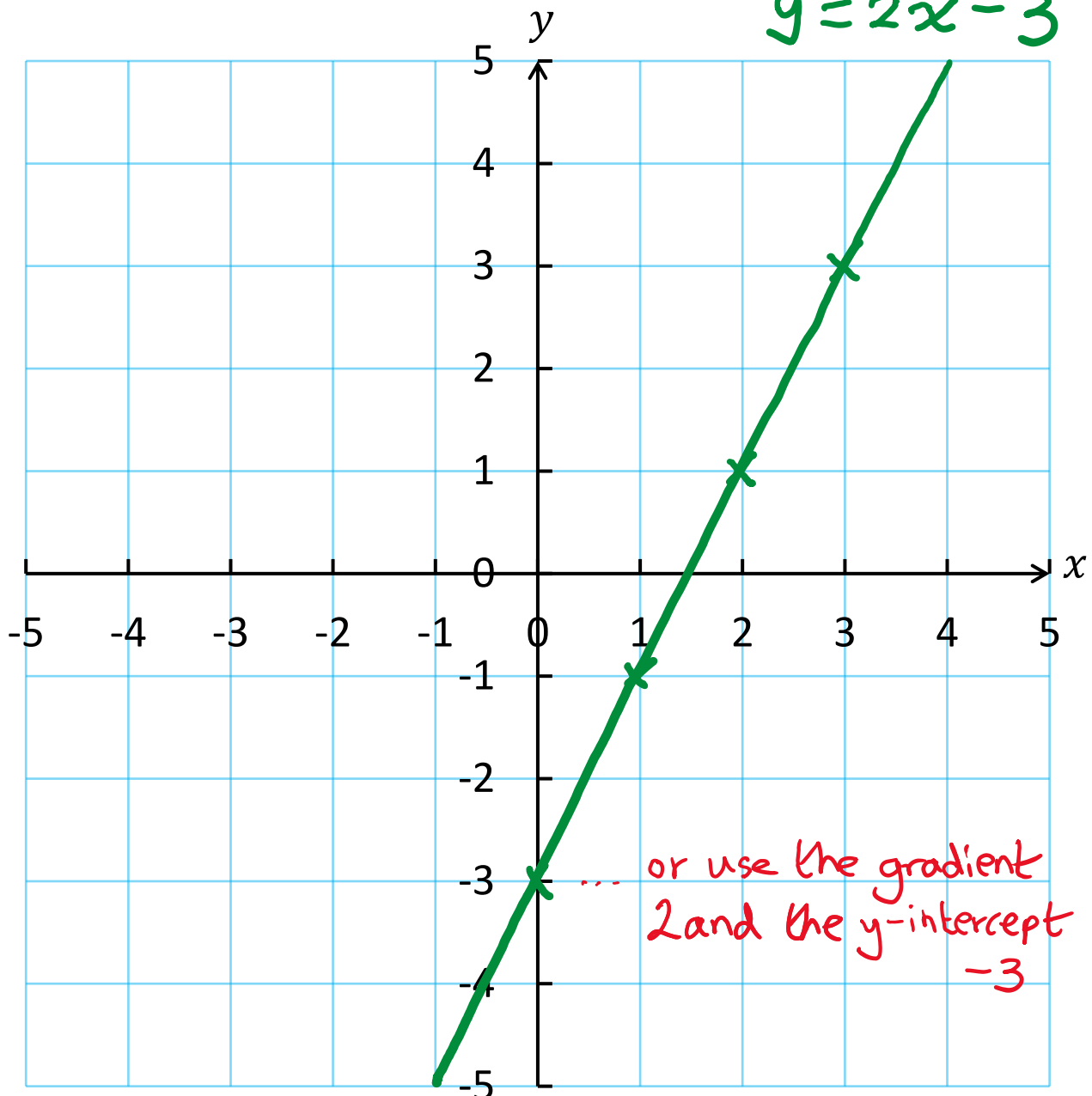


On the graph paper below, plot the line  $y = 2x - 3$ .

$x$	0	1	2	3
$y$	-3	-1	1	3

← You can form a table of values to be plotted...

$$y = 2x - 3$$

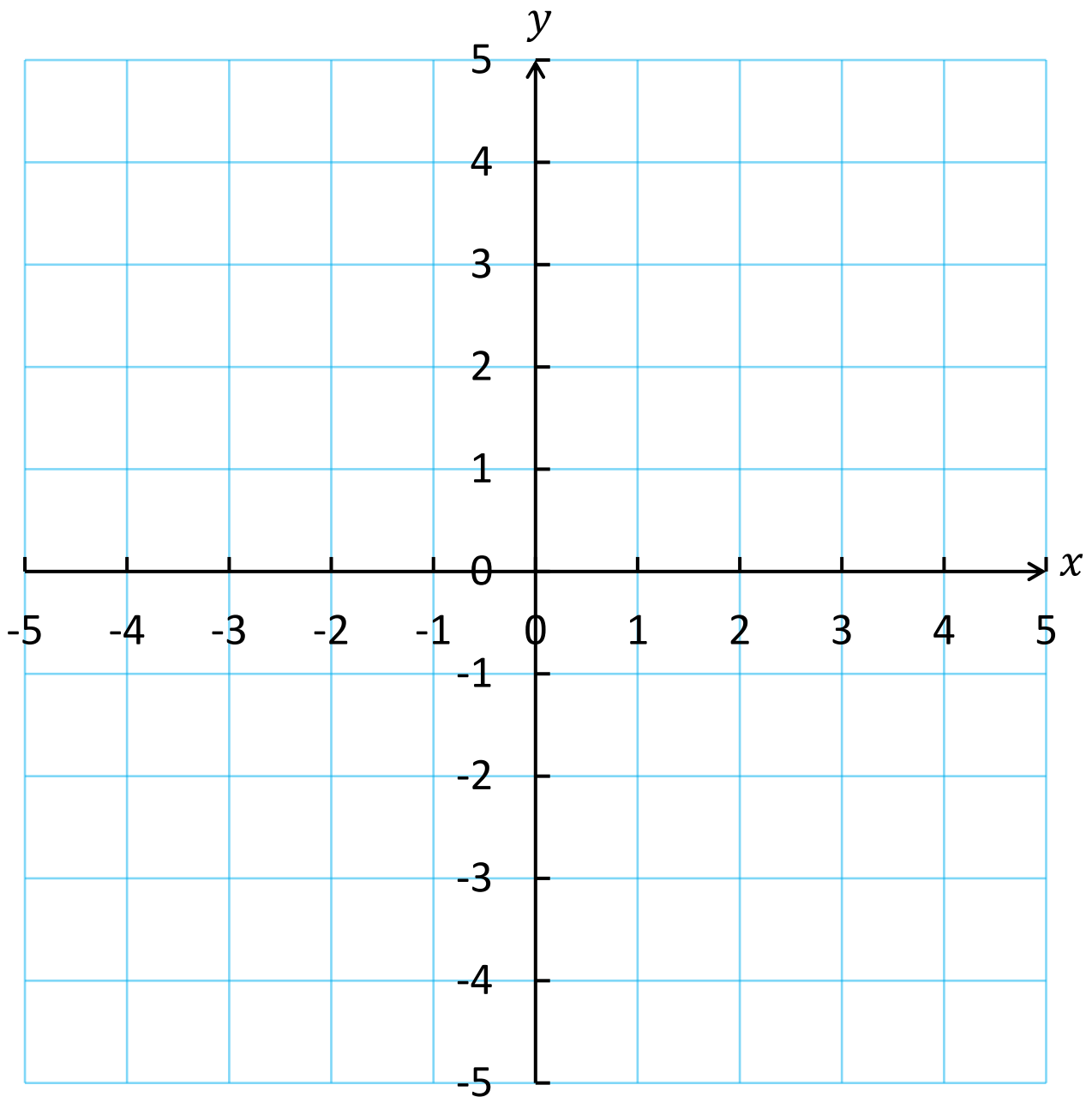




## Exercise 2



On the graph paper below, plot the line  $y = -3x + 4$ .



\_\_\_ out of 2



## Quiz 3



1) Write  $3\frac{2}{7}$  as an improper fraction.

2)  $\frac{2}{9} + \frac{4}{9}$

3) Write down the reciprocal of  $\frac{2}{3}$

4) What is the formula for calculating the area of a circle?

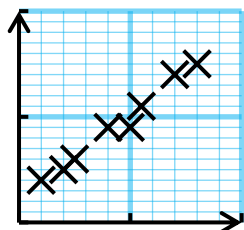
5) Expand  $4(x - 2)$

6) Expand  $(y + 4)(y - 1)$

7) What type of correlation is shown?

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

9)  $-7 \times -6$



\_\_\_ out of 9

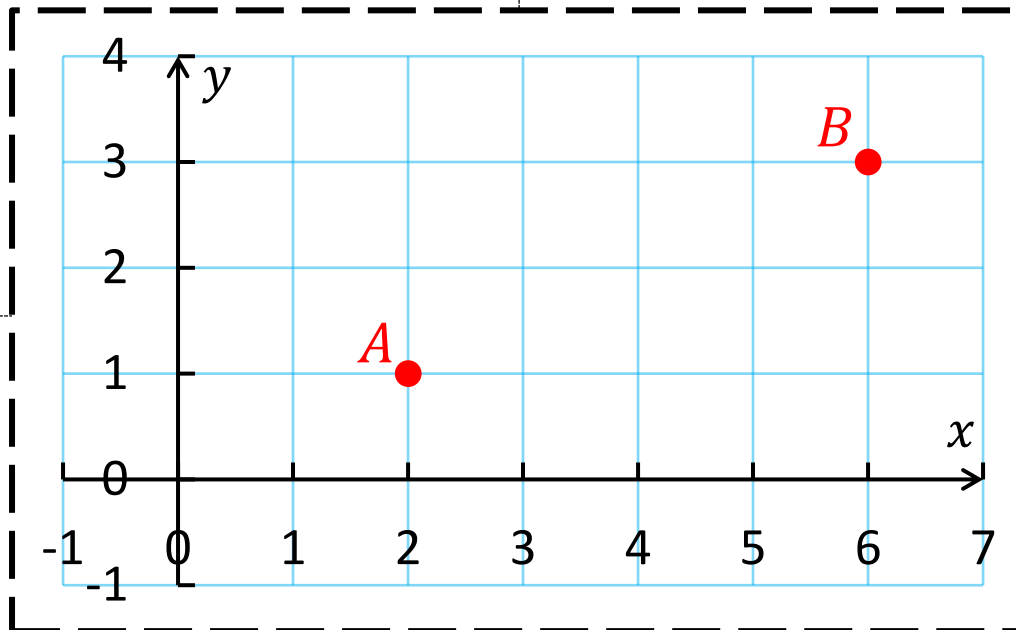


## Co-ordinates



1) What are the co-ordinates of  $A$  and  $B$ ?

2) What is the co-ordinate of the mid-point of the line  $AB$ ?



3) What is the gradient of the line  $AB$ ?

4) What is the distance between  $A$  and  $B$ ?

\_\_\_ out of 4



Example 3



Calculate  $4728 \times 965$ .

		4	7	2	8	
4	3	6	1	7		9
	6	3	8	2		
5	2	4	2	4		6
	4	2	2	8		
6	2	3	1	4		5
	0	5	0	0		
	2	5	2	0		

Answer: 4,562,520



# Exercise 3



Calculate  $5384 \times 726$ .

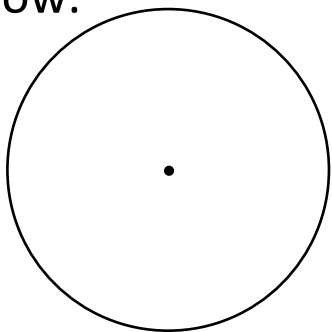

\_\_\_ out of 3



## Quiz 4



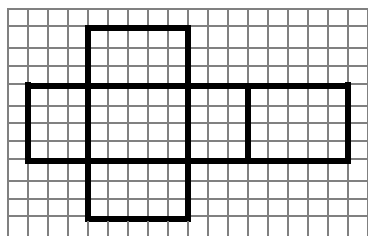
1) Add a segment to the circle below.



2)  $28 \div -4$

3) Which fraction is the greatest:  
 $\frac{2}{3}$  or  $\frac{7}{10}$ ?

4) The following net folds to give which solid?



5) How many minutes are in 3 hours and a half?

6) Solve the equation  $\frac{x}{2} = 8$

7)  $7.4 - 2.68$

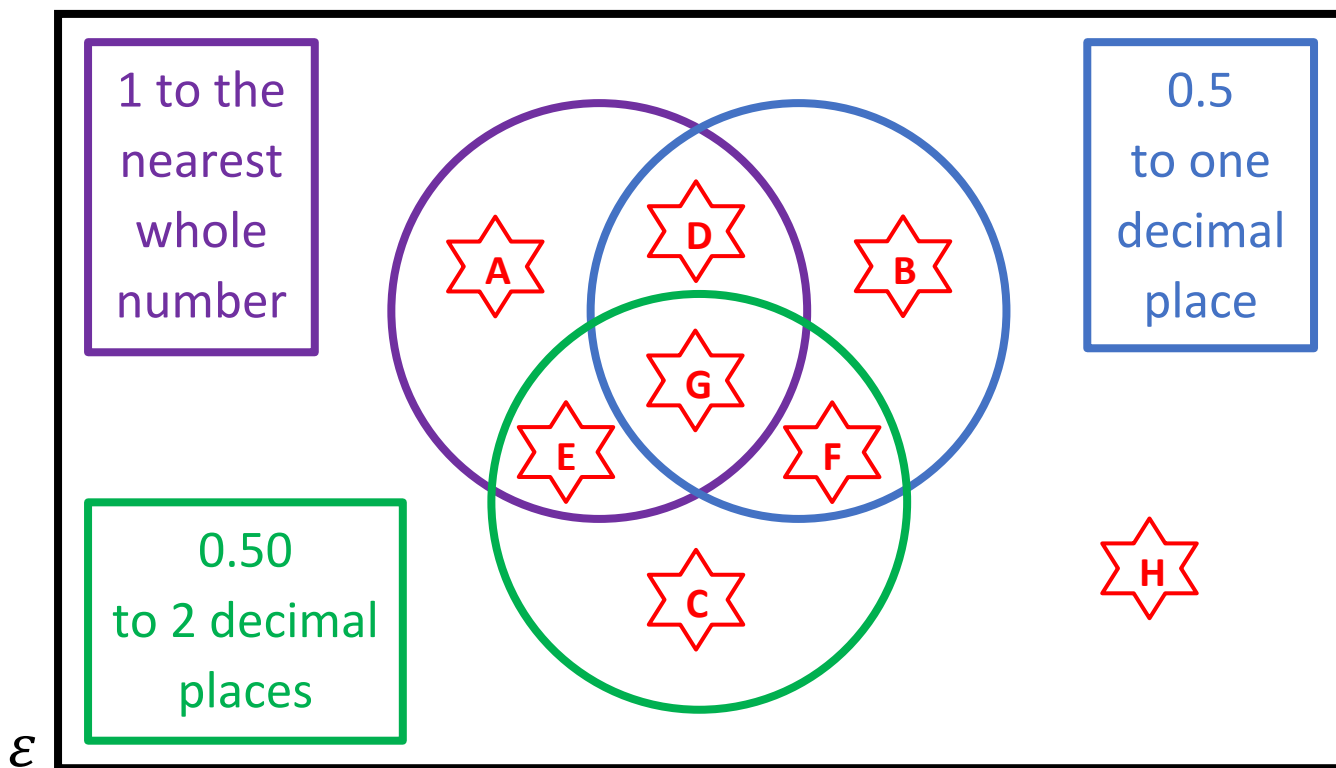
8) 10% of £25

9) Round off 23.5467 to two decimal places.

\_\_\_ out of 9



# Venn Diagram Challenge 2



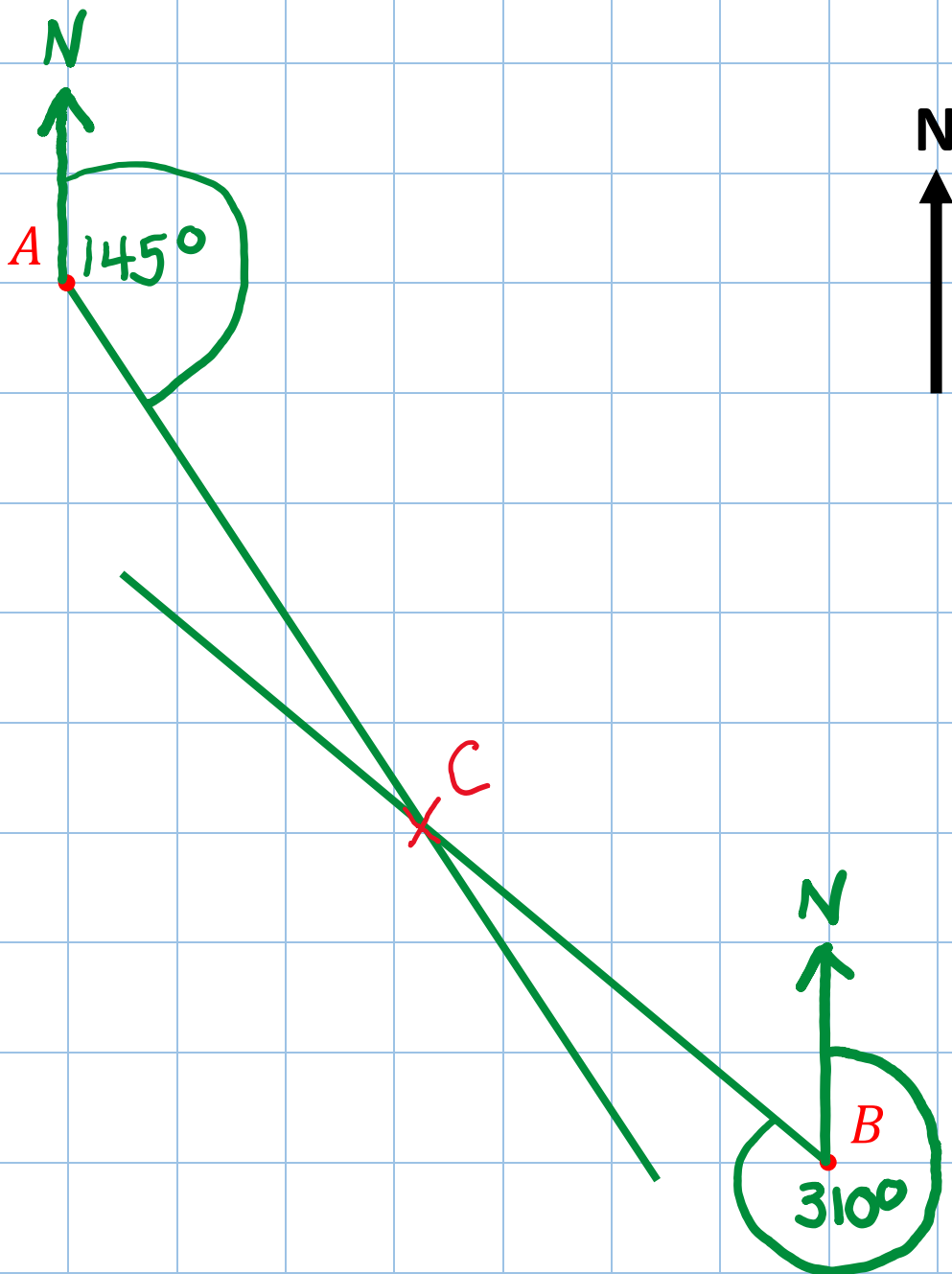
Think of a decimal with **3 digits after the decimal point** that could fit into each region. If you think a region is impossible to fill, explain why!




## Example 4



The point  $C$  is located at a bearing of  $145^\circ$  from  $A$  and at a bearing of  $310^\circ$  from  $B$ . Mark the location of  $C$  using a cross.

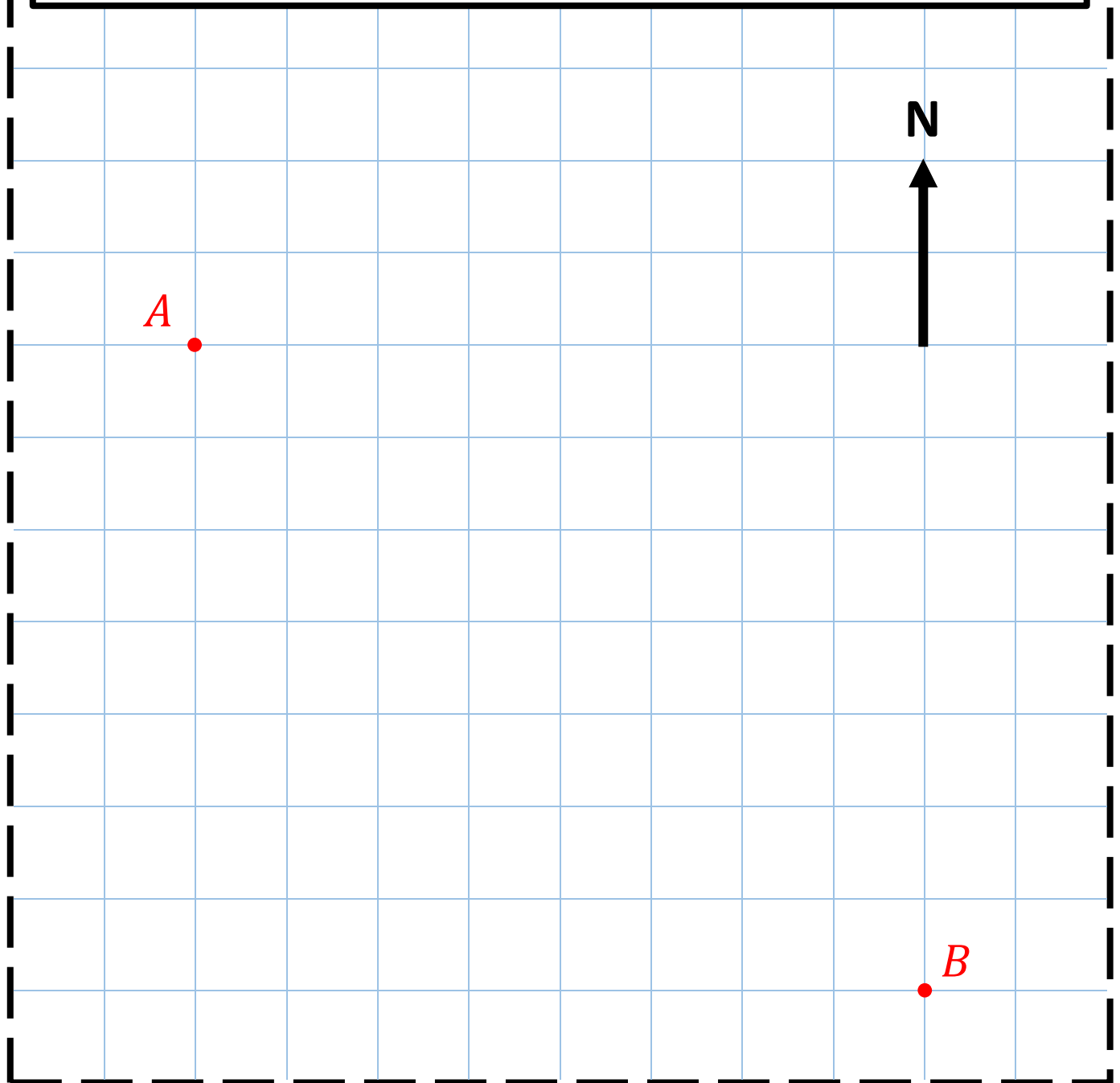




## Exercise 4



The point  $C$  is located at a bearing of  $110^\circ$  from  $A$  and at a bearing of  $335^\circ$  from  $B$ . Mark the location of  $C$  using a cross.



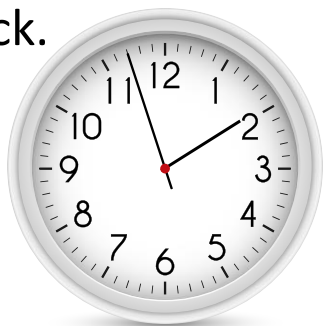
\_\_\_ out of 3



## Quiz 5



1) Write the time using the 24-hour clock.



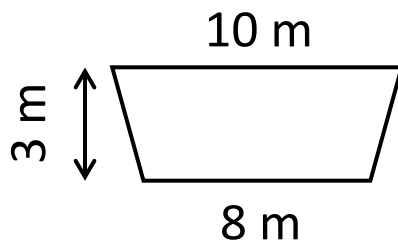
p.m.

2)  $4^3$

3) How many edges does a heptagon have?

4)  $7.3 \times 9$

5) What is the area of the trapezium?



6) Round off 650 to the nearest 100.

7) The mean of 5, 1, 1, 3

8) Calculating 25% of a number is the same as dividing by \_\_\_\_\_.

9)  $0.0264 \times 1000$

\_\_\_\_ out of 9



## Quiz 6



$6 \times 3 =$	$14 + 19 =$	$72 \div 8 =$	10% of 40 =	$31 - 13 =$
50% of 30 =	$32 \div 4 =$	$7 \times 8 =$	$24 - 7 =$	$43 + 58 =$
$21 + 19 =$	20% of 50 =	$43 - 9 =$	$49 \div 7 =$	$9 \times 6 =$
$70 \div 2 =$	$13 - 15 =$	$11 \times 8 =$	25% of 60 =	$32 + 19 =$
$47 - 12 =$	$54 + 9 =$	$140 \div 14 =$	$12 \times 5 =$	75% of 20 =

\_\_\_ out of 25

## Evaluating the Workbook



## Notes



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