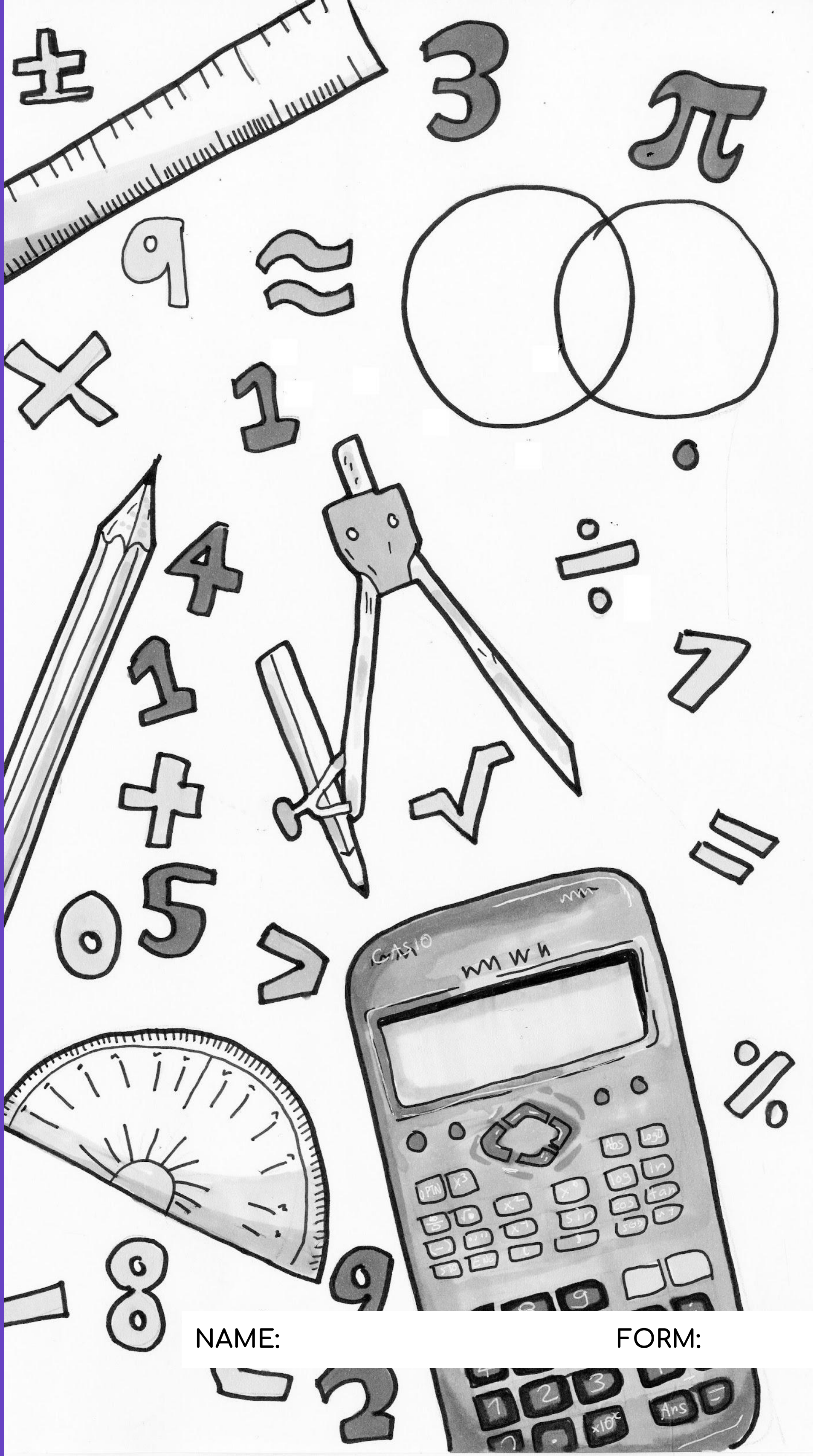


MATHEMATICS

YEAR 7 Independent Learning Booklet 2021-2022



NAME:

FORM:

Contents

Contents:

- 1) Learning Journey
- 2) How to use HegartyMaths
- 3) How to log in to HegartyMaths
- 4) HegartyMaths Clips to revise along with lessons in school
- 5) Maths Vocabulary
- 6) Weekly Independent Tasks
- 7) Recommended reads

- During the term you will follow the Learning Journey shown and complete at least one Hegarty task on the topic. You will also have question to complete in this Independent Learning Booklet
- These will be checked by your teacher each week.
- The work in this booklet is for lesson consolidation, revision, and some extra maths challenge!

Learning Journey

These are the topics we are covering each week this term. Tick the 'Red' 'Amber' or 'Green' column depending on how well you think you have understood each topic.

Spring 1	Topic	Red	Amber	Green
		:(:	:)
Week 1	Order directed numbers, using lines and symbols.			
Week 2	Division of directed numbers.			
Week 3	Introduction to two step equations.			
Week 4	Represent fractions.			
Week 5	Equivalent fractions			

Learning Journey

These are the topics we are covering each week this term. Tick the 'Red' 'Amber' or 'Green' column depending on how well you think you have understood each topic.

Spring 2	Topic	Red	Amber	Green
		:(:	:)
Week 1	Angle notation and classifying angles.			
Week 2	Quadrilaterals and constructions.			
Week 3	Angles facts.			
Week 4	Angles problems (triangles and quadrilaterals)			
Week 5	Mental calculations.			
Week 6	Use known number factors to derive other facts.			

“BELIEF + HARD WORK + SUPPORT = SUCCESS.”

What does independent learning on Hegarty Maths look like?

Number > Place value

Read and write positive integers

Big Idea: Place Value

1,000,000s	100,000s	10,000s	1,000s	100s	10s	1s
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
678						
4,678						
40,687						
25,608						
25,678						

A video explaining the topic by a real maths teacher

13 - Read & write positive integers

Learn how to identify the place value of various numbers; some easy and some complex.

Video watched 0.00x

Your score New lesson HegartyMaths avg 89%

Do quiz

A self-marking quiz that is directly related to the video – no trick questions

Spotted a mistake in this video?

Building blocks

Question preview

Evaluate

$8 + 9$

Number > Arithmetic with positive integers

9 - Addition facts

Video watched 0.00x

Your score New lesson HegartyMaths avg 97%

Question preview

Evaluate

8×9

Number > Arithmetic with positive integers

10 - Multiplication facts (times tables)

Video watched 1.00x

Your score New lesson HegartyMaths avg 96%


Building blocks – don't understand the video? Building blocks show you the topics you need to understand BEFORE you try this new topic. They act as more support for your learning. These are always found at the bottom of the page

An example of great work – copying the notes and practicing showing off your process when attempting the questions

Example ⑥ Work out the perimeter of a regular octagon with side length of 7.4cm.

$8 \times 4 = 32$
 $8 \times 0.4 = 3.2$

$P = 8 \times 7.4$
 $= 8 \times (7 + 0.4)$
 $= 56 + 3.2$
 $= \underline{\underline{59.2\text{cm}}}$



7.4cm

Example ⑦ Work out the perimeter of a rectangle with width 5.2cm and height 7.9cm.

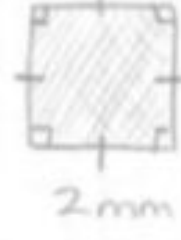
$P = (2 \times 5.2) + (2 \times 7.9) = 10.4 + 15.8$
 $= \underline{\underline{26.2\text{cm}}}$

Mental Maths
 $5.2 + 7.9 = 13.1$
 $13.1 \times 2 = \underline{\underline{26.2}}$

REMEMBER!
 There is more than one way!!

Quiz 2 - Notes

1) Perimeter of Shaded Shape? *No Calculator*

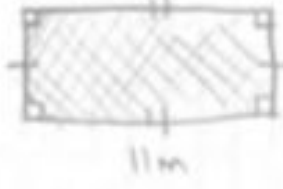


2mm

4 sides all with single dash
 \rightarrow Square

$P = 4 \times 2$
 $= \underline{\underline{8\text{mm}}}$ ✓

2) Perimeter of Shaded Shape?




6m 11m

Rectangle

$P = (2 \times 6) + (2 \times 11)$
 $= 12 + 22$
 $= \underline{\underline{34\text{m}}}$ ✓

3) Perimeter of Shaded Shape?



5m

6 equal sides
 \rightarrow Hexagon

$P = 6 \times 5$
 $= \underline{\underline{30\text{m}}}$ ✓

Don't forget to write a comment to your teacher if you get something wrong – they'll be able to help you!

What score did you get in the quiz?

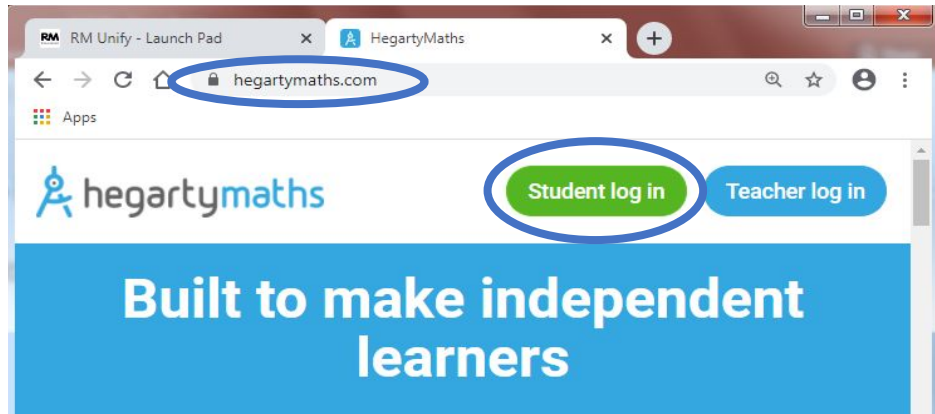
100% Great effort! Why not try the next HW or improve some of your other scores.

70 - 99% Try the quiz again and work hard to learn from any previous mistakes.

Below 70% Don't give up. If you have taken full notes of the video, worked on your building blocks and you're still struggling then leave comments for your teacher to ask for help. It's important you make sure you ask your teacher for help to make sure you can eventually get 100%.



How to log into HegartyMaths

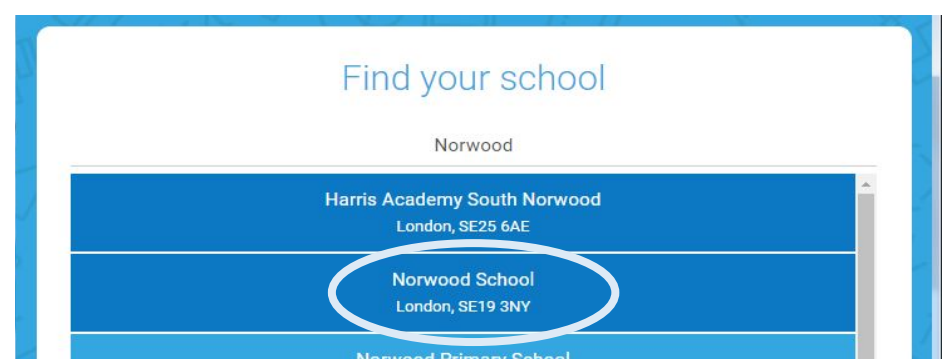


Step 1

From the website, www.hegartymaths.com, click on "Student log in"

Step 2

Type in 'Norwood' to find our school. It will be the second option



Step 3

Enter First name, Last name, and Date of birth. These must be the same as the details on the school register. Names are cAsE insEnsiTivE, so it doesn't matter if you write them in *lower case* or *UPPER* case or a *MiX*.

Step 4

The first time you log in, the system asks you to choose a password which you will need to write twice. Create a memorable password so you do not forget it. Only a teacher can reset a student password, so choose carefully! (Maybe write it down inside the cover of your Maths book?). Passwords ARE case sensitive!

The next time you log in, you'll just be asked for your password once.

If you have forgotten your password, click the link to request your teacher to reset it. They won't get the message until the next time they log in to HegartyMaths themselves, so don't leave your homework until the last minute!

Week beginning 3/1/2022

Hegarty Clip 39

(directed numbers)

Attempts: _____

Score: _____

	Question	Answer	Mark
1	Put these numbers in ascending order: 1, 3, -3, -5, -7		
2	Put these numbers in descending order: -8, -3, 9, -7, 4		
3	What is the biggest -9 or 10		
4	$5 - 11 =$		
5	$-6 - 9 =$		

Assessment type question



If we know $-3 \times -2 = 6$,
we also know:

$$6 \div -2 = \underline{\hspace{2cm}}$$

$$6 \div -3 = \underline{\hspace{2cm}}$$

Use this space for notetaking from the Hegarty video, e.g. key words and examples



If you want to work even more on this topic, try task 40 on Hegarty!

Week beginning 10/1/2022

Hegarty Clip 42
(Multiplication and division of directed numbers)

Attempts: _____
Score: _____

	Question	Answer	Mark
1	Work out $-90 \div +10$		
2	Work out $-54 \div (-6)$		
3	Calculate $36 \div -9 =$		
4	$-25 \div -10 =$		
5	$-121 \div +11 =$		

Assessment type question



Evaluate the expressions by substituting the values $a = 5$, $b = -3$, $c = -1$ and $d = 0$

 $a - b$

 bd

 c^2

Use this space for notetaking from the Hegarty video, e.g. key words and examples



If you want to work even more on this topic, try task 43 on Hegarty!

Week beginning 17/1/2022

Hegarty Clip 179
(Introduction to two step equations)

Attempts: _____

Score: _____

Question

Answer

Mark
k

1 $x + 4 = 11$

2 $w - 6 = 23$

3 $5d = 70$

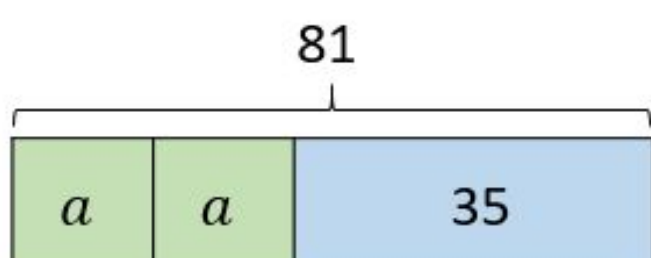
4 $k/4 = 7$

5 $2x + 6 = 12$

Assessment type question



Use the bar model to help you find the value of a .



$$2a + 35 = 81$$

$$2a = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 180 on Hegarty!

Week beginning 24/1/2022

Hegarty Clip 63 (Represent fractions)

Attempts: _____

Score: _____

	Question	Answer	Mark
1	Write $10/3$ as a mixed number. Give your answer in its simplest form.	<div>$1\frac{\square}{3} = \frac{5}{\square}$</div>	
2	Complete the statement.	<div>$\frac{13}{\square} = 3\frac{\square}{\square}$</div>	
3	Complete the statement		
4	Write $3\frac{1}{4}$ as an improper fraction		

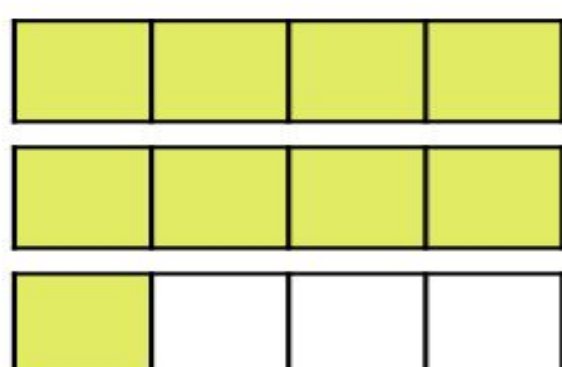
Assessment type
question



Sophie says that this diagram shows $2\frac{1}{4}$



Ron says that it shows $\frac{9}{4}$



Who is correct? Explain your answer.

Use this space for notetaking from the Hegarty video, e.g. key words and examples




If you want to work even more on this topic, try task 64 on Hegarty!

Week beginning 31/1/2022

Hegarty Clip 59 (Equivalent fractions)

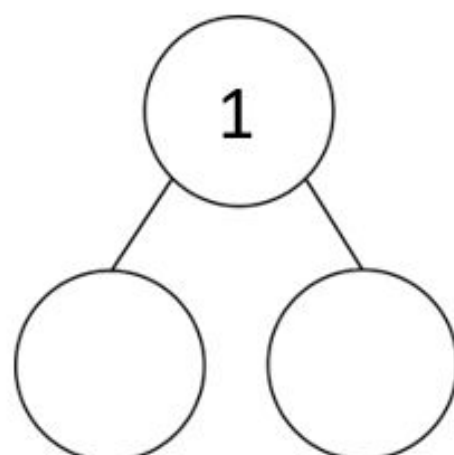
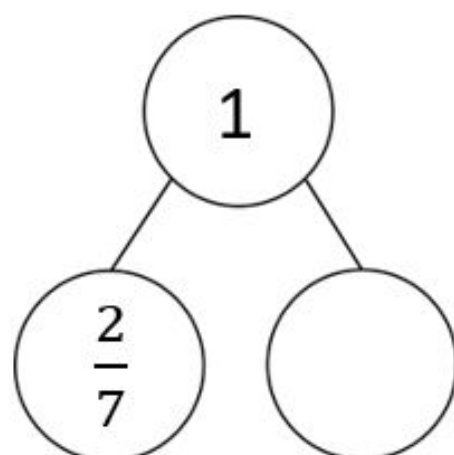
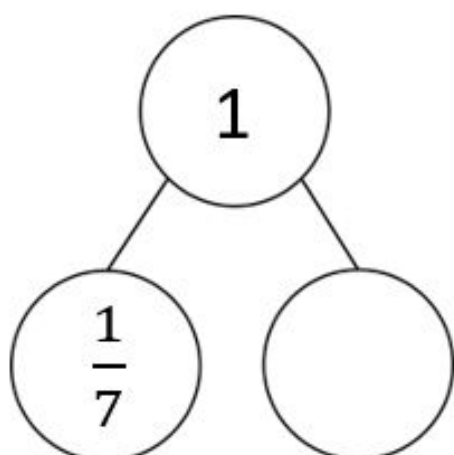
Attempts: _____

Score: _____

	Question	Answer	Mark
1	Work out $\frac{2}{9} + \frac{3}{9}$		
2	Evaluate $\frac{4}{5} - \frac{2}{5}$		
3	Answer in its simple form. $\frac{1}{3} + \frac{1}{3} =$ <input type="text"/>		
4	Answer in its simple form $\frac{1}{12} + \frac{1}{12} - \frac{1}{12} =$		
	 Work out the sum of $\frac{2}{9}$ and $\frac{5}{9}$		
5	Give your answer in its simplest form.		

Assessment type
question

How many different ways can you make a whole using sevenths?



Use this space for notetaking from the Hegarty video, e.g. key words and examples



If you want to work even more on this topic, try task 66 on Hegarty!

Week beginning 21/02/2022

Hegarty Clip 456 (Angle notation and measure)

Attempts: _____

Score: _____

	Question	Answer	Mark
1	A diver performs a dive with two and a half-turns. How many degrees do they rotate through?		
2	Write down three things in your classroom which turn through an angle.		

- 3
A geometric figure is shown to the right.



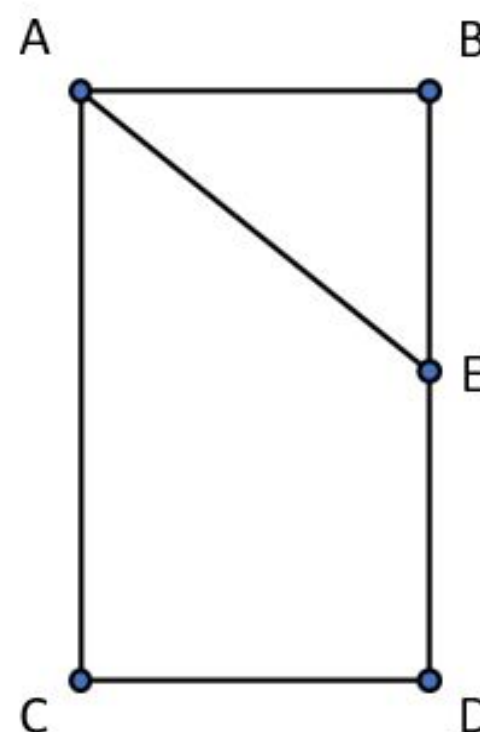
Use letter notation to fill in the blanks in the statements below.

Angle _____ is a right-angle.

Line segments _____ and _____ are vertical.

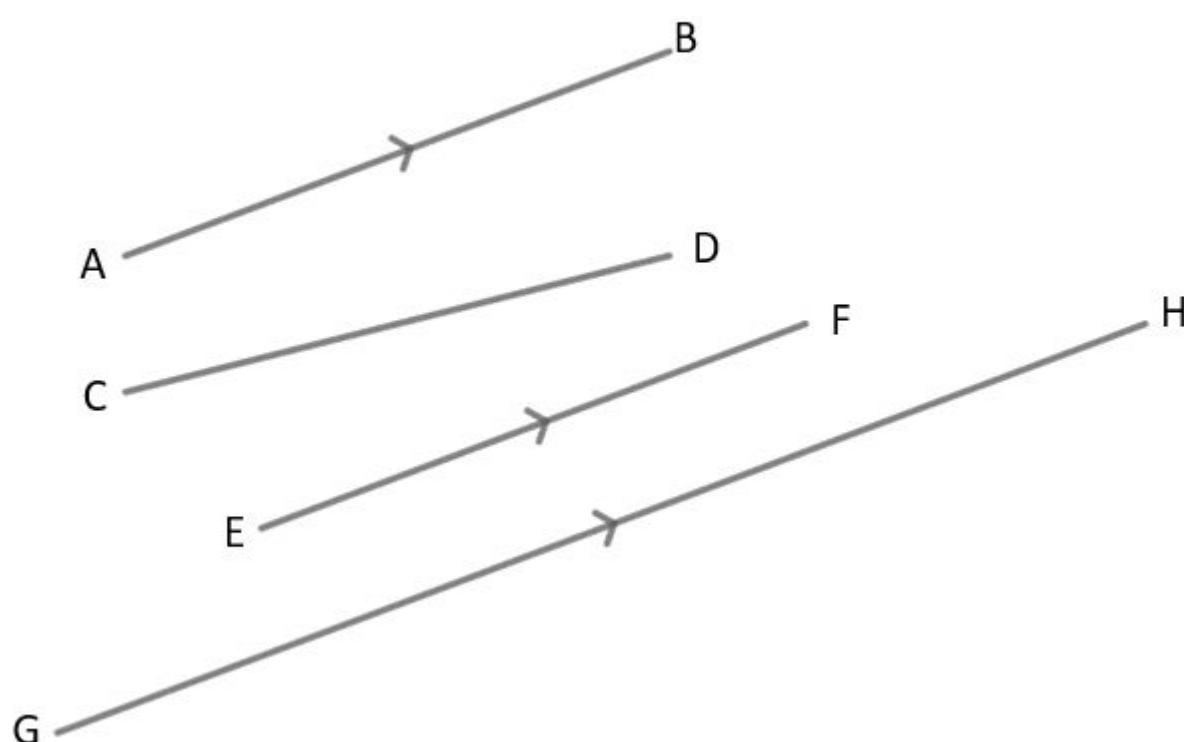
Shape _____ is a triangle.

Shape _____ is a quadrilateral.



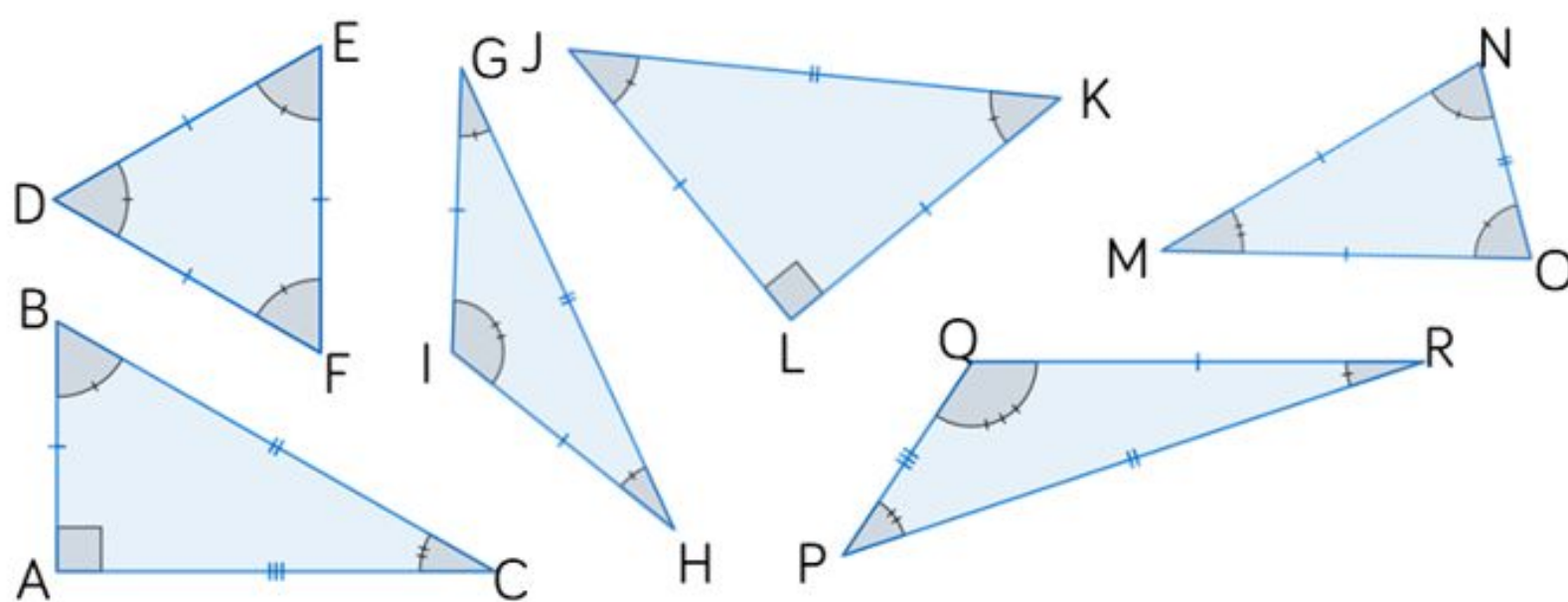
4.

Which of the line segments are parallel?



Assessment type question

Classify the following triangles as equilateral, isosceles, scalene or right-angled. Is there more than one category for each triangle?



Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 457 on Hegarty!

Week beginning 28/02/2022

Hegarty Clip 824 (Recognise types of quadrilaterals)

Attempts: _____

Score: _____

Q1.

Alex and Dora measure the angle using a protractor.



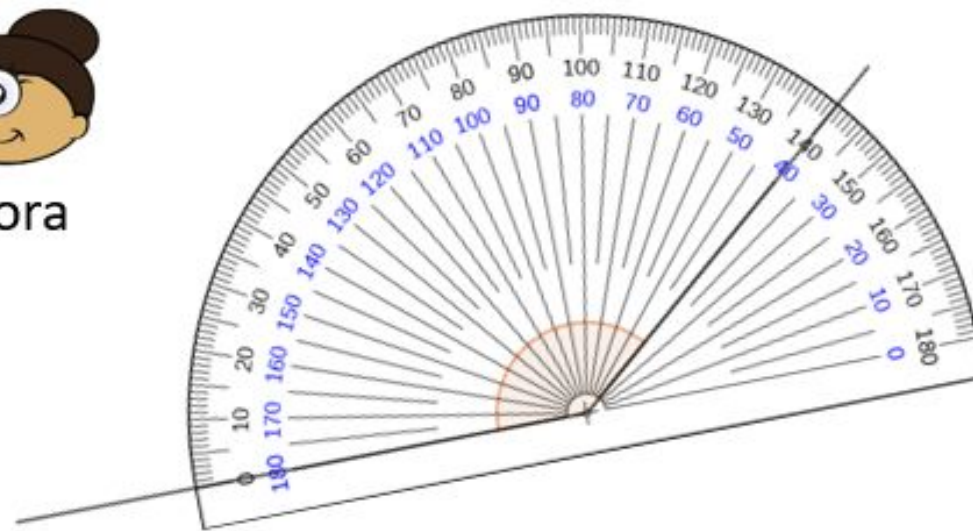
The angle is 40°

Alex



The angle is 140°

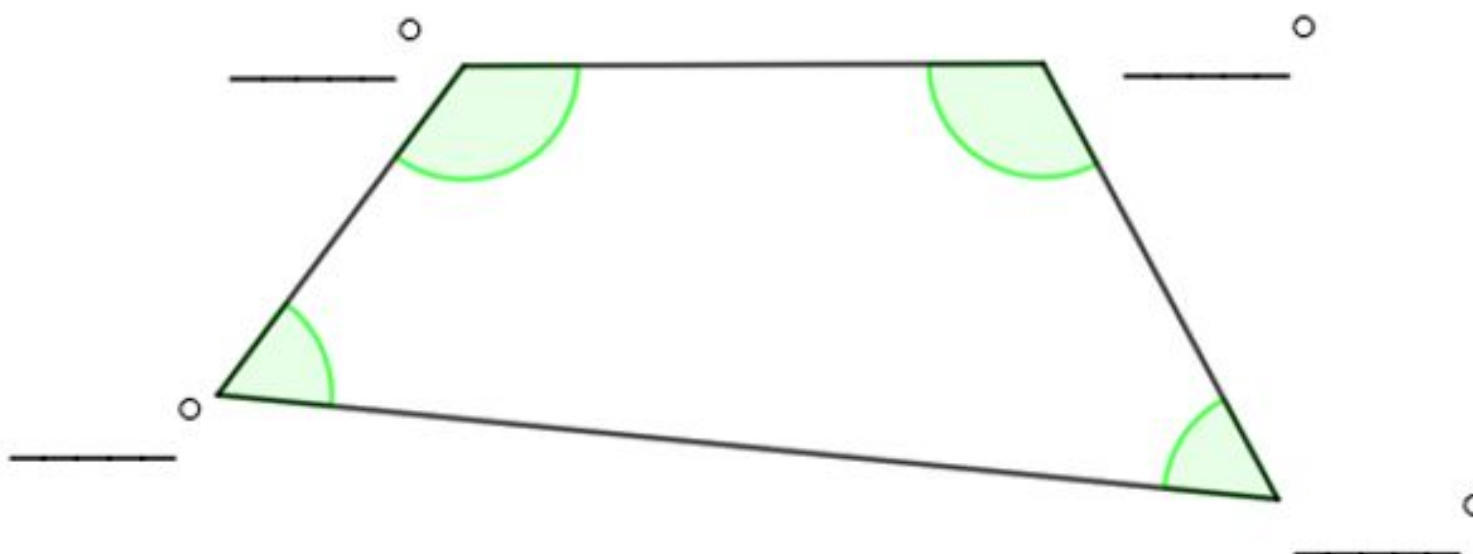
Dora



Who do you agree with? Why?

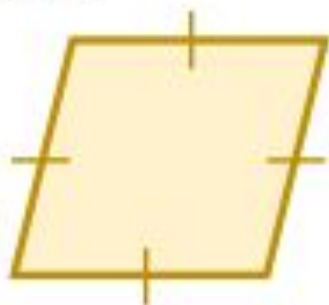
Q2.

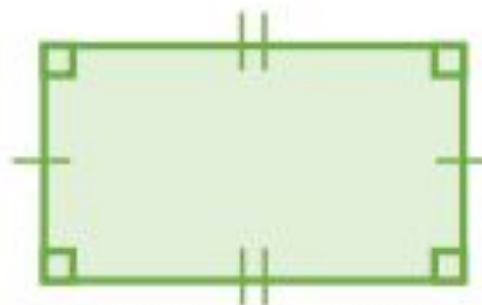
Measure the size of each of the interior angles in the shape.

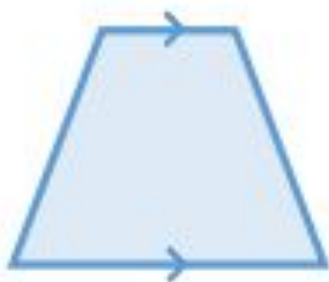


Assessment type
question

Write down the mathematical name of each
shape.









Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 822 on Hegarty!

Week beginning 7/03/2022

Hegarty Clip 812 (Angle facts)

Attempts: _____

Score: _____

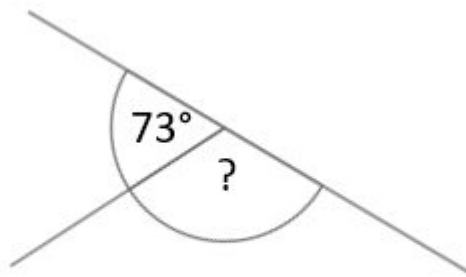
Question

Answer

Mark

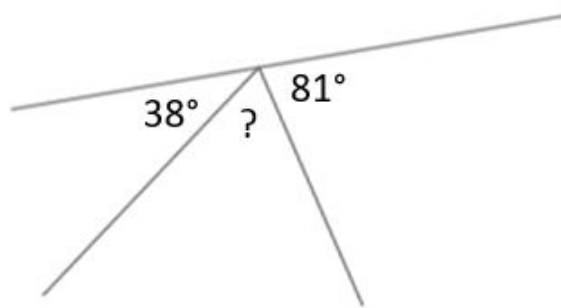
1

Calculate the size of the
Missing angle.



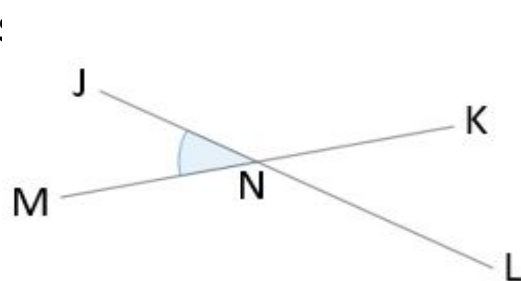
2

Calculate the size of
the missing angle



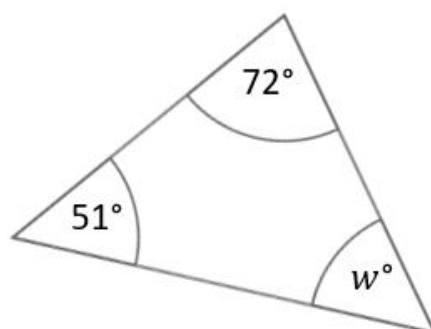
3

Use letter notation to indicate the angle that
is
vertically opposite
indicated by the



4

Calculate the size of the
Missing angle.

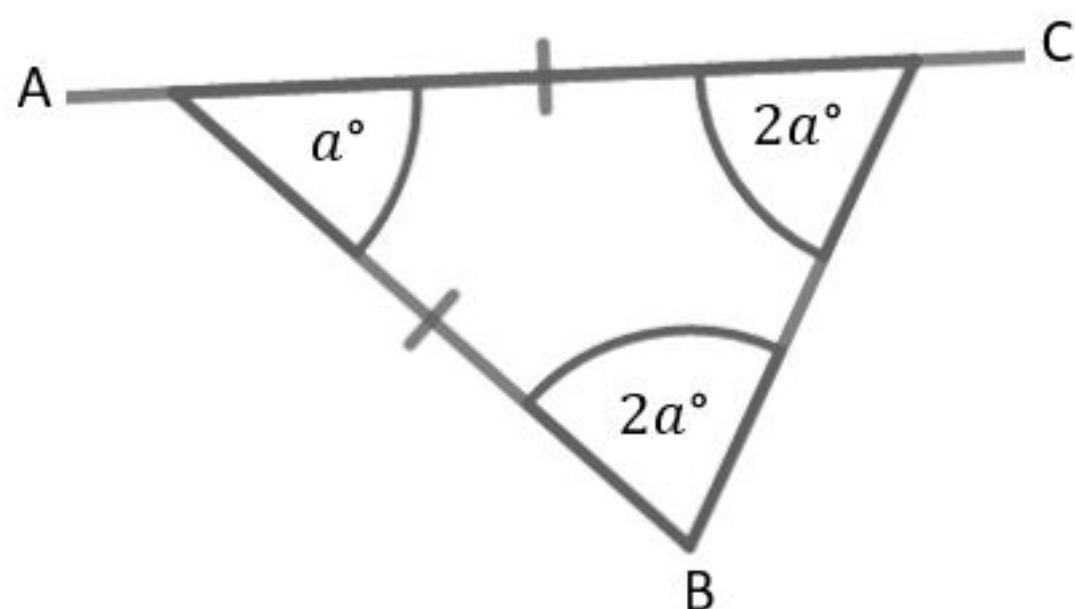


Assessment type question

Bella says, "Angle a can be any angle and $2a$ is double that."

Milo says, "Five lots of angle a must be equal to 180° ."

Who do you agree with? Why?



Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 477 on Hegarty!

Week beginning 14/03/2022

Hegarty Clip 486

(Angles in a triangle and quadrilaterals)

Attempts: _____

Score: _____

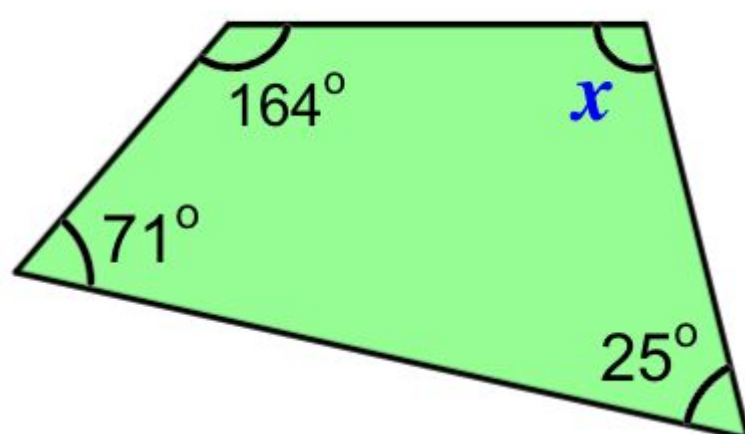
Question

Answer

Mark

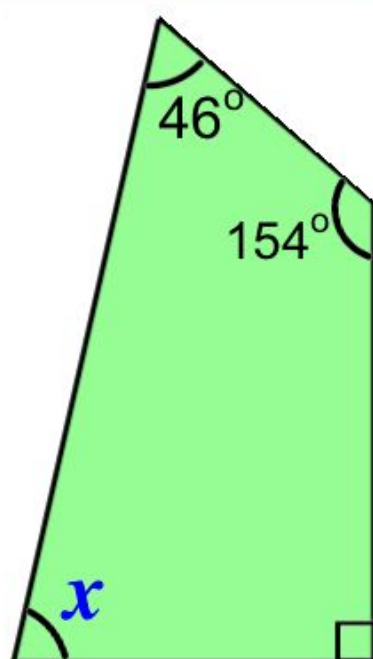
1 ? Find the value of the unknown angle x .

1



2 ? Find the value of the unknown angle x .

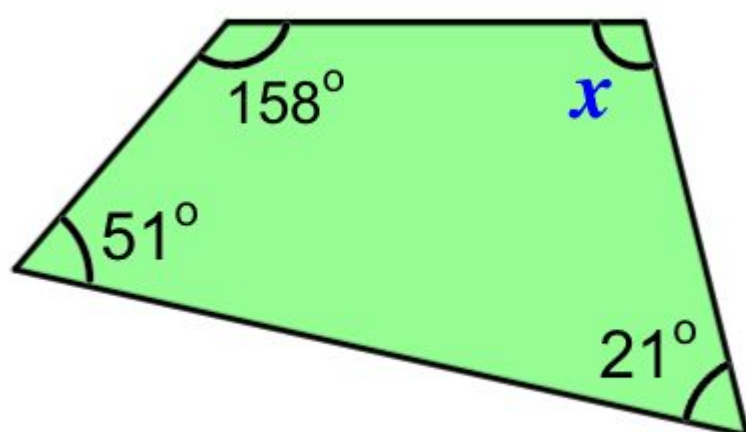
2



The diagram is not drawn to scale.

3 ? Find the value of the unknown angle x .

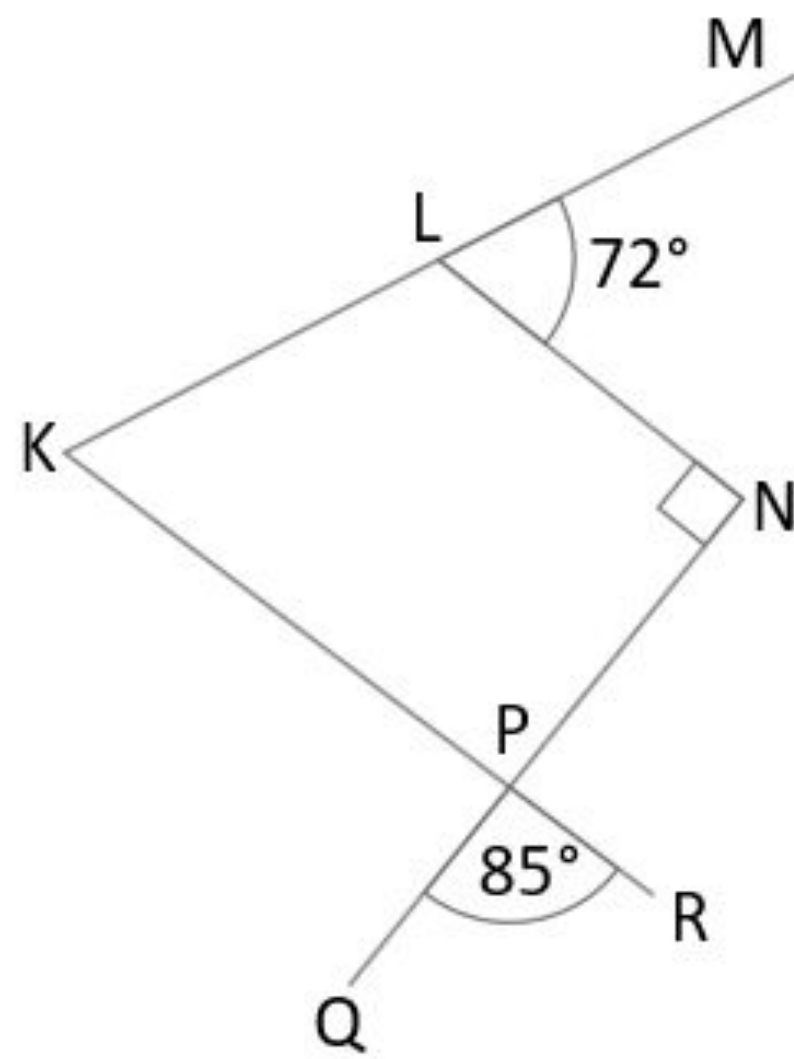
3



The diagram is not drawn to scale.

Assessment type
question

What is the size of angle LKP?



Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 489 on Hegarty!

Week beginning 21/03/2022

Hegarty Clip 148 (Mental calculations)

Attempts: _____

Score: _____

	Question	Answer	Mark
1	$37 + 28$ How many different ways can you perform this calculation mentally?		
2	Spot the mistake in the working out. $827 - 99 = 827 - 100 - 1 = 726$		
3	Work out $4.6 + 19.9$		
4	$612 + 28 =$ Work out an estimate for this calculation		

Assessment type question

Which strategy would you use for the following calculations?



150×4	43×9	17×11	53×98
$2800 \div 14$	$42 \div 3$	$800 \div 20$	$900 \div 15$

Work out the answers using your strategy.

Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 130 on Hegarty!

Week beginning 28/03/2022

Hegarty Clip 131 (Estimate complex calculations)

Attempts: _____

Score: _____

Q1.



$$23 \times 42 = 996$$

Use this number fact to derive the answers to:

$$2.3 \times 4.2$$

$$996 \times 42$$

$$23 \times 21$$

$$996 \div 230$$

How many other number facts can you derive from this fact?

Workings

Q2

Decide on the most efficient method to solve each problem.



A – Formal written method **B** – Mental strategy **C** – Calculator

8979 people watch a netball match.
5602 are male.
How many are female?

Can Mr Hussein buy 40 bags of crisps if he has £10 and each pack costs 27p?

It is 45 miles from Leeds to Manchester.
Can you travel from Leeds to Manchester in 40 minutes if you travel at an average speed of 70 miles per hour?

Assessment type question.

Alison buys jeans, a t-shirt and a bracelet.



Find an **estimate** for the total cost.

£ _____

☐

1 mark

Work out the **exact** amount she pays.

£ _____

☐

1 mark

She pays with two twenty-pound notes.
How much change does she receive?

£ _____

☐

1 mark

How much more money does she need to buy
another t-shirt?

£ _____

☐

1 mark

Use this space for notetaking from the Hegarty video, e.g. key words and examples.



If you want to work even more on this topic, try task 132 on Hegarty!

Exam-style Questions

Calculate the following. Write your answer as a mixed number where possible. Give your answers in their simplest form.

$$\frac{1}{5} + \frac{1}{3}$$

$$\frac{4}{5} + \frac{2}{3}$$

$$\frac{4}{5} - \frac{2}{3}$$

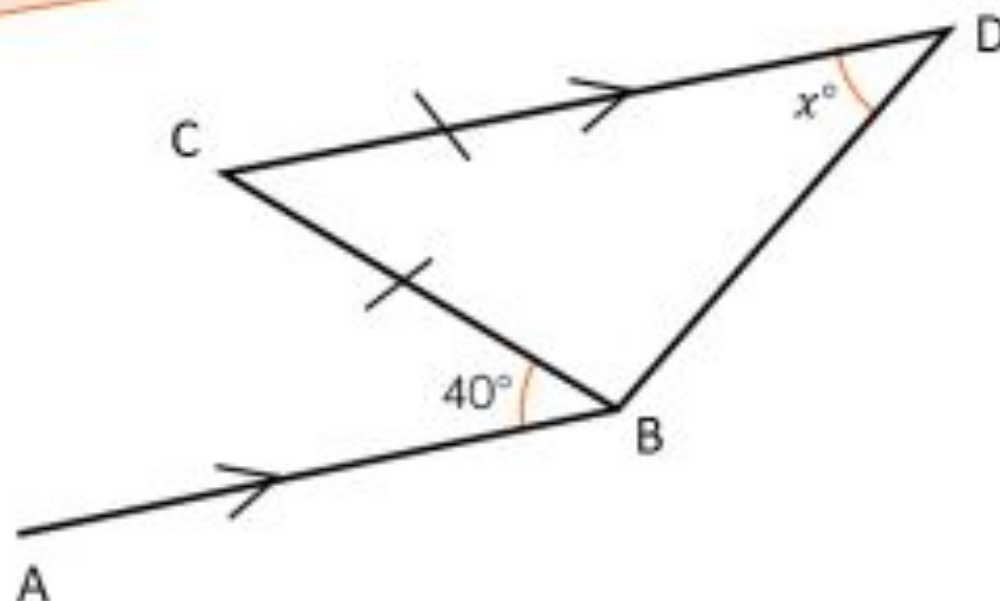
$$\frac{3}{4} + \frac{4}{10}$$

$$\frac{8}{9} - \frac{3}{7}$$

$$\frac{3}{5} + \frac{5}{8} - \frac{7}{10}$$

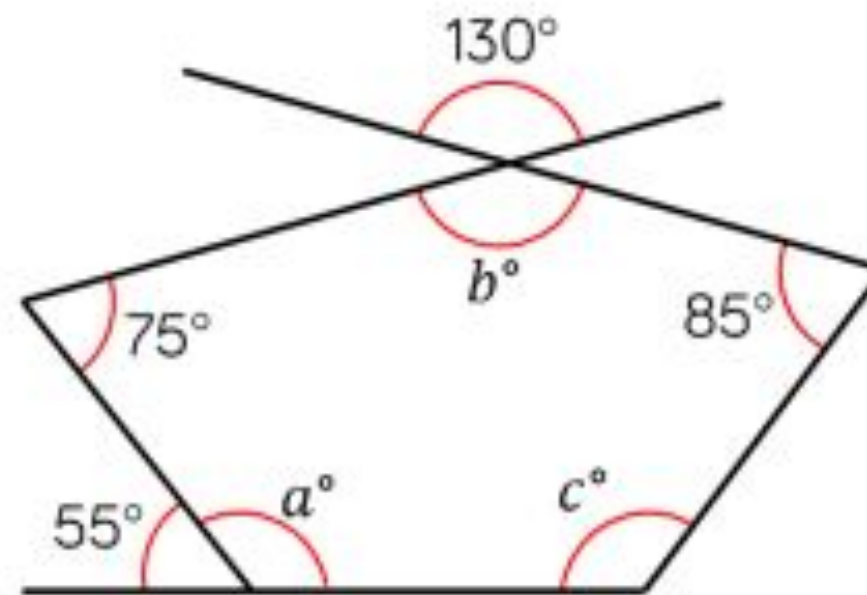
Rosie is calculating the value of the angle labelled x .

x is equal to 40 because angle BCD is alternate to ABC and triangle BCD is isosceles.



What mistake has she made?

Calculate the unknown angles in this polygon.
Give mathematical reasons for all your answers.



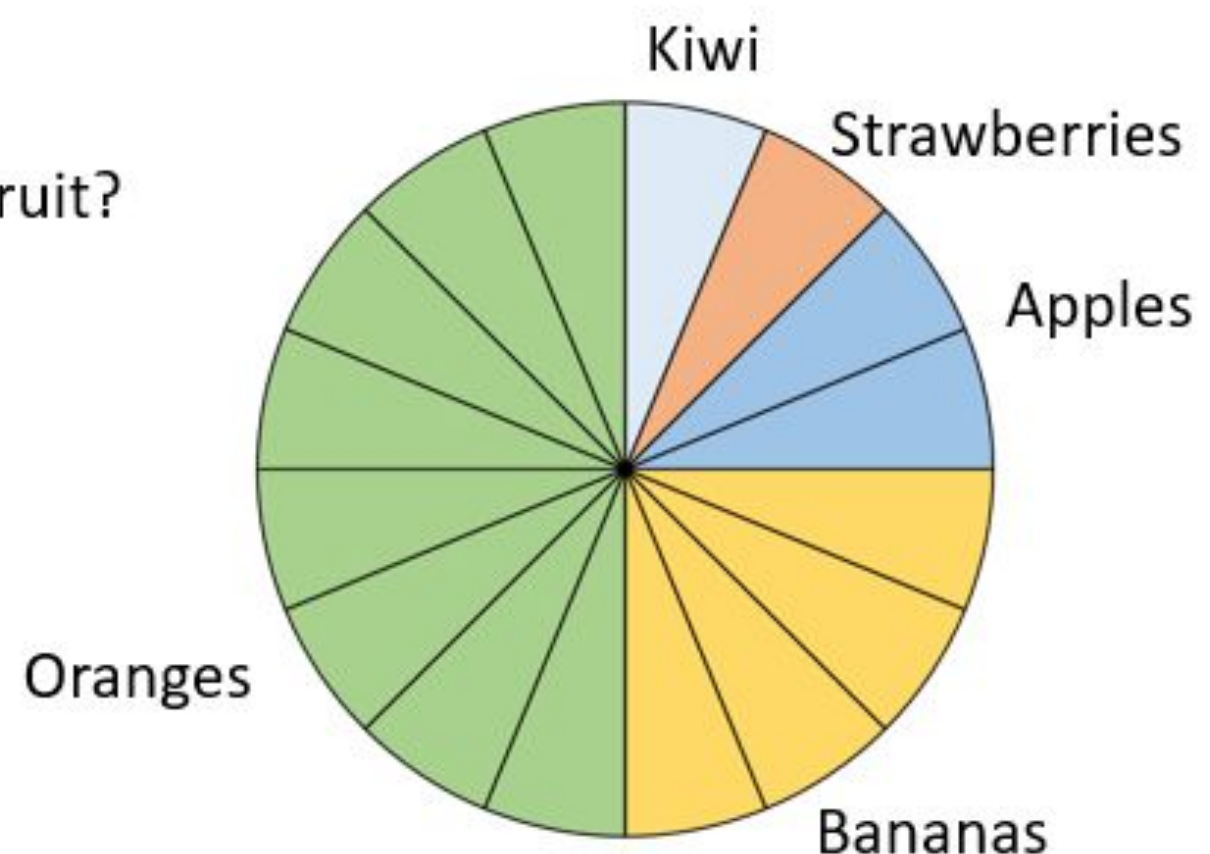
Does the order in which you find the angles matter?

The pie chart below shows the favourite fruits of a class. There are 32 students in the class.

What fraction prefer bananas?

How many more students prefer oranges to apples?

What was the least popular fruit?



Use the bar model to help you find

$\frac{1}{6}$ of 36	$\frac{5}{6}$ of 36	$\frac{1}{3}$ of 36
$\frac{4}{3}$ of 36	$\frac{1}{12}$ of 36	$\frac{12}{12}$ of 36

--	--	--	--	--	--

If the whole were 18 instead, how would this change your answers?
 What if the whole were 12?
 What if the whole were 48?

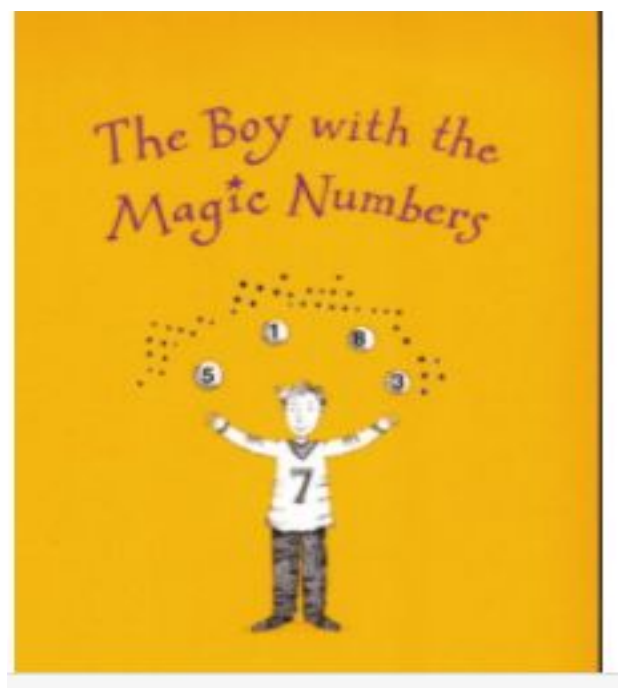
Use the information that $74 \times 29 = 2146$ to find the missing numbers.

$$7.4 \times 29 = \underline{\hspace{2cm}}$$

$$2146 \div 74 = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \times 2.9 = 2.146$$

Mr Hayes



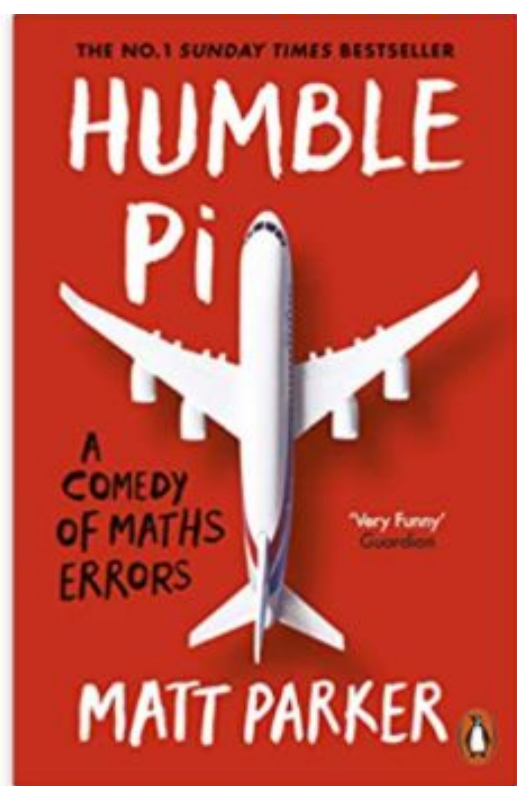
Ms LT



'Sushi Kokuu Hen'

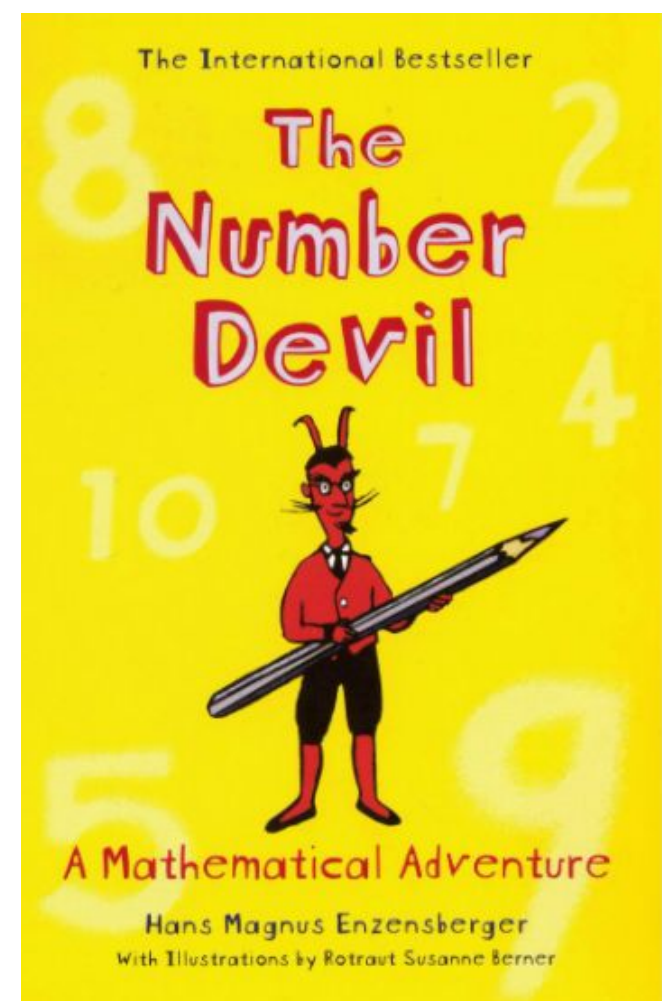
Recommended Reads!

Mr Brown

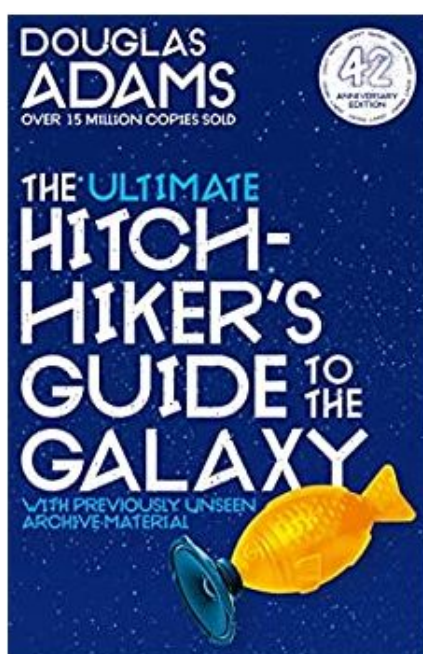


Each maths teacher has suggested a maths based book you might enjoy! Some fictional, some factual!

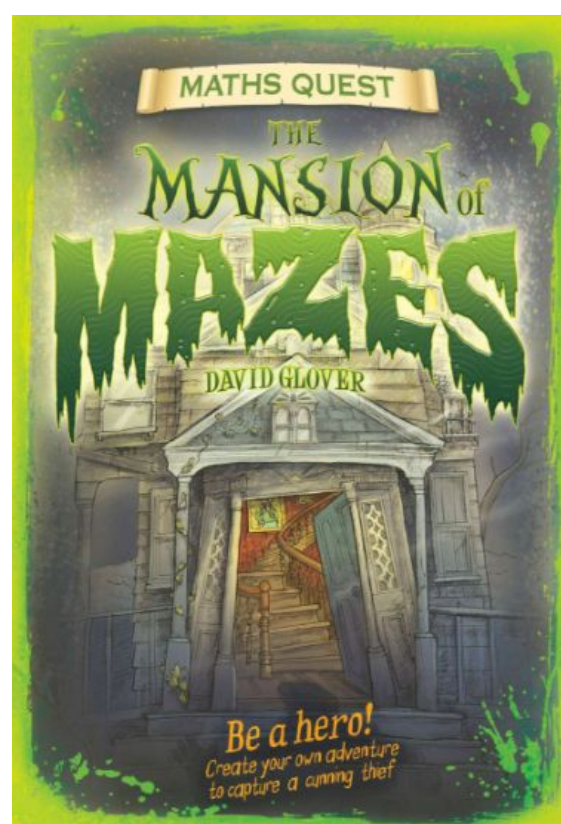
Mr Malone



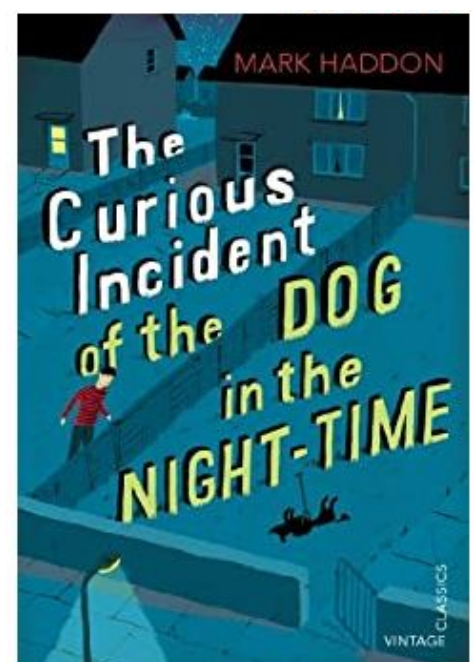
Ms Mendez



Mr U



Mr Purvis



For more information or guidance on completing your Independent Learning Booklet, speak to or email your Maths teacher:

Mr Uwaechi - uwaechi.f@thenorwoodschool.org
Head of Mathematics Faculty

Ms Mendez – mendez.f@thenorwoodschool.org
KS3 Coordinator

Ms LT – thomaslestrade.j@thenorwoodschool.org

Mr Brown – brown.j@thenorwoodschool.org

Ms Hayes – hayes.r@thenorwoodschool.org

Mr Malone – malone.w@thenorwoodschool.org

Mrs Bright - bright.m@thenorwoodschool.org