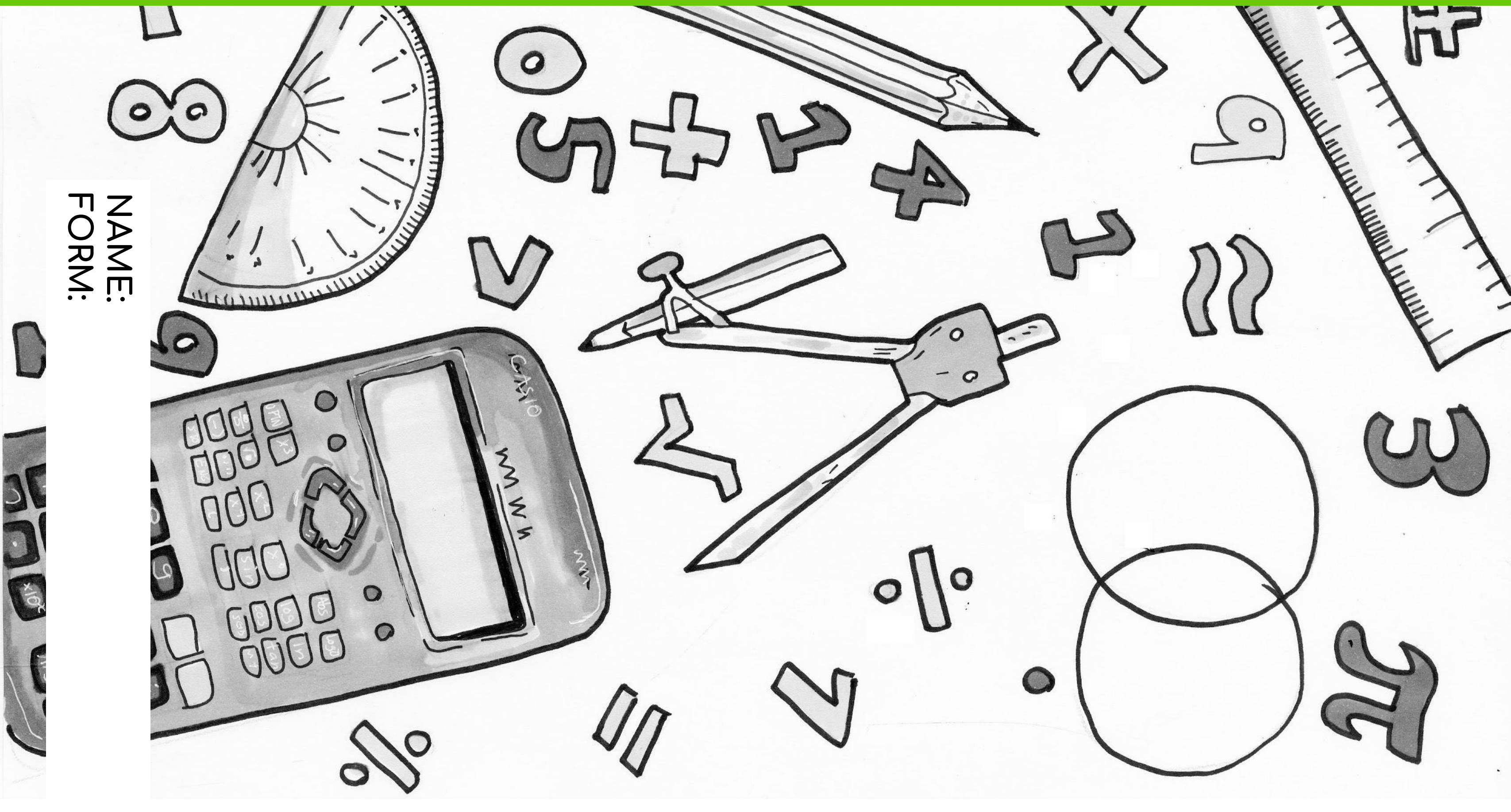
THE NORWOOD SCHOOL

MATHEMATICS

YEAR 8 Independent Learning Booklet 2022-2023

NAME:
FORM:



Contents

Contents:

- During the term you will follow the Learning Journey shown and complete at least one Hegarty task on the topic.
- You will also have questions 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.

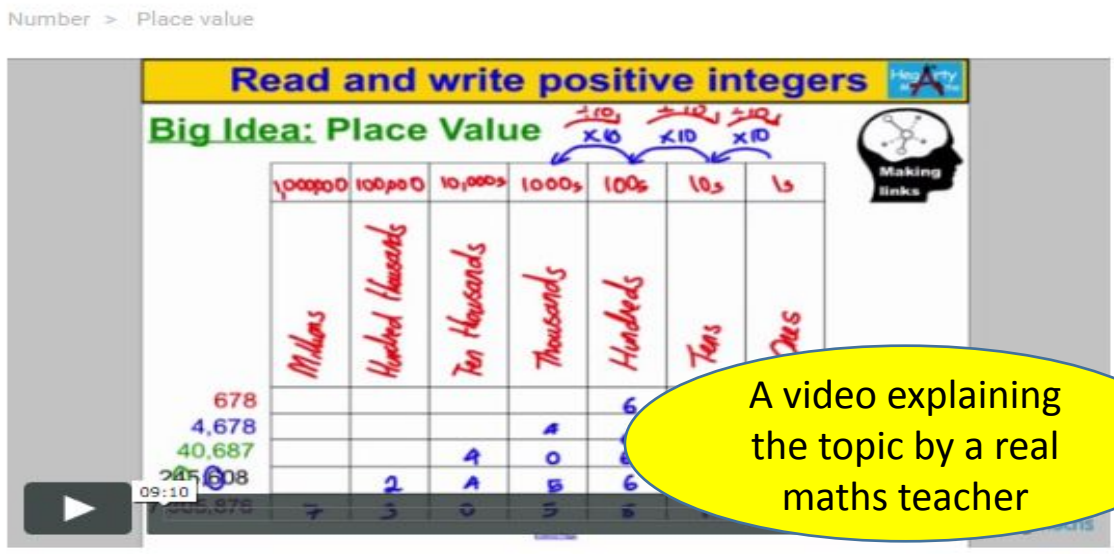
Autumn 1	Topic	Red	Amber	Green
		:(	:|	:)
Week 1	Understand ratio			
Week 2	Problems with ratio			
Week 3	Multiplicative chance /proportion			
Week 4	Multiplicative chance /currencies			
Week 5	Multiply Fractions			
Week 6	Divide Fractions			

Autumn2	Topic	Red	Amber	Green
		:(	:|	:)
Week 1	The Cartesian Plane; coordinates			
Week 2	The Cartesian Plane			
Week 3	The Cartesian Plane			
Week 4	Represent data			
Week 5	Represent data			
Week 6	Tables and probability			

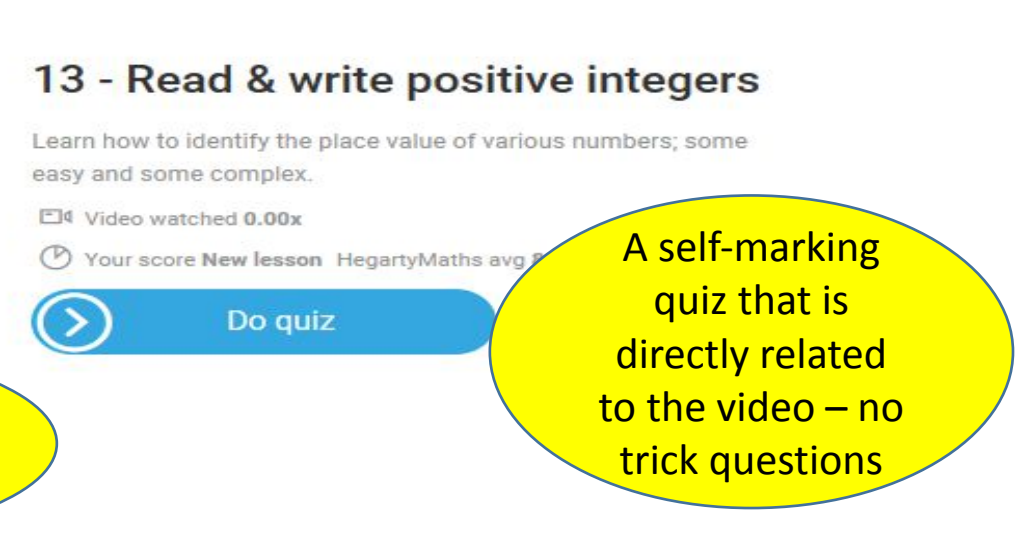
hegartymaths

"BELIEF + HARD WORK + SUPPORT = SUCCESS."

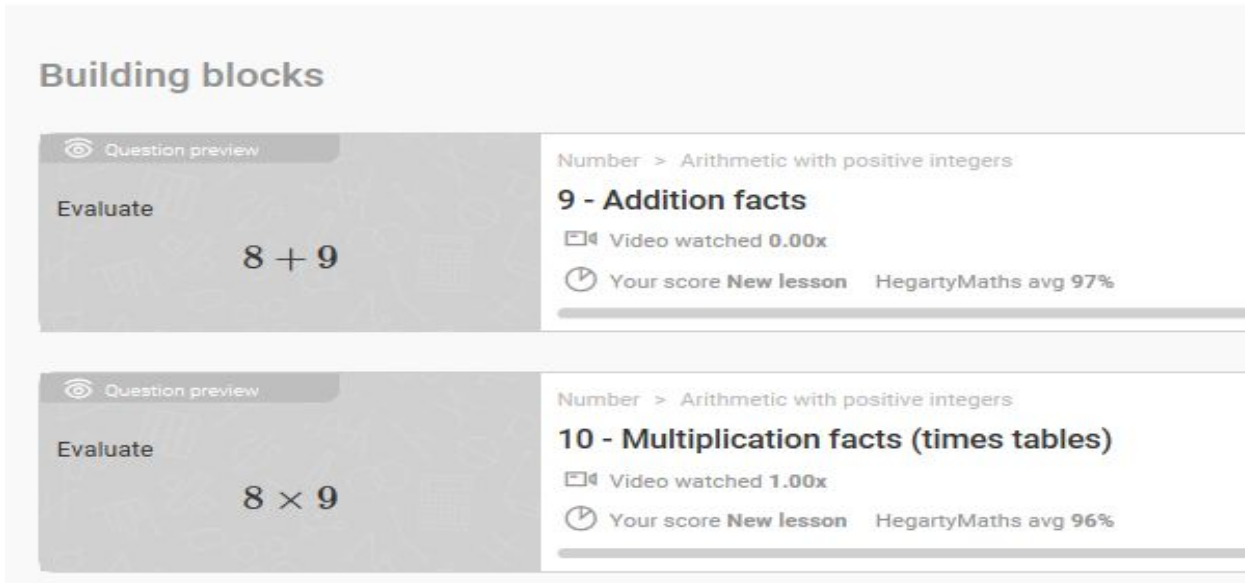
What does independent learning on Hegarty Maths look like?



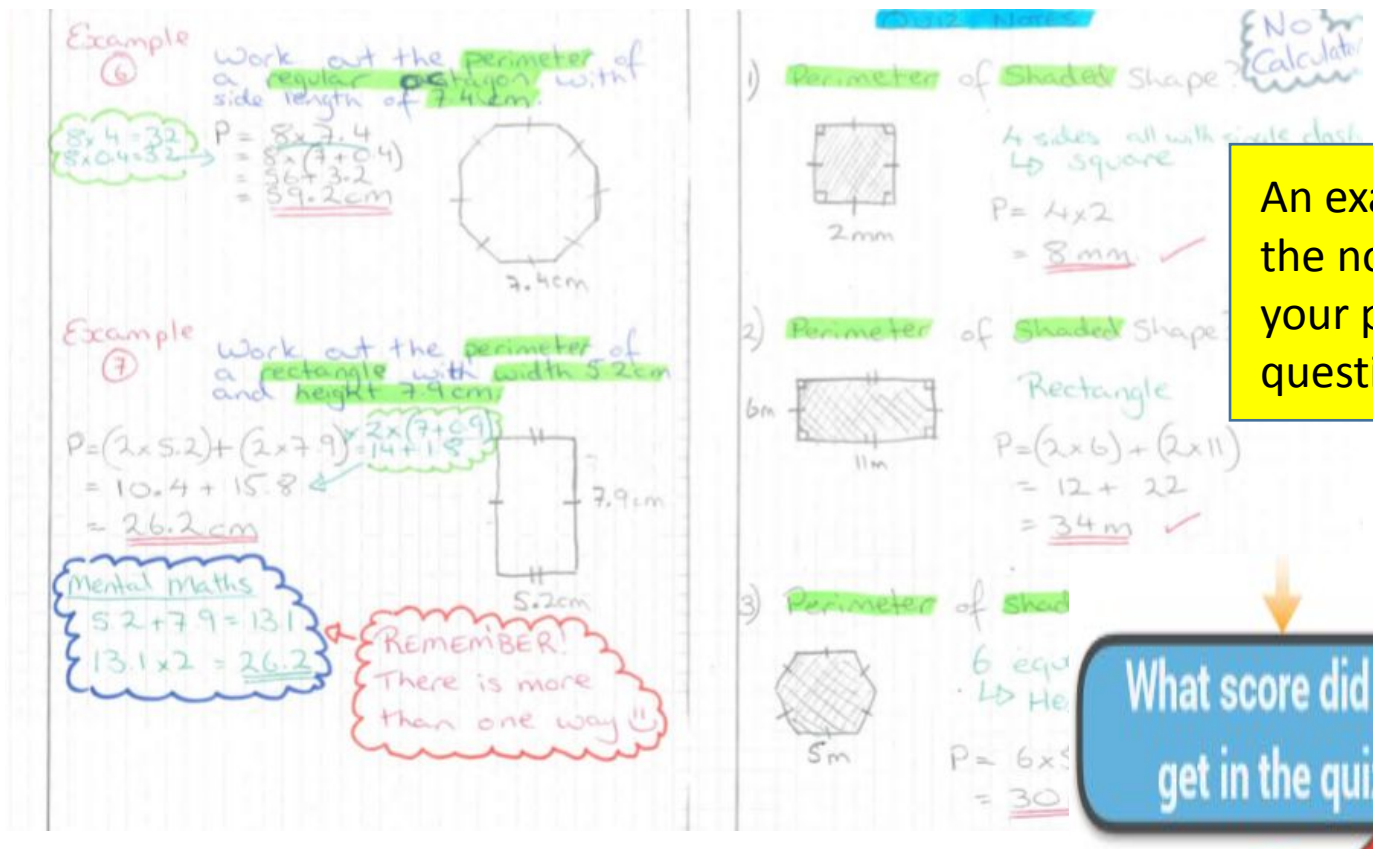
A video explaining the topic by a real maths teacher



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

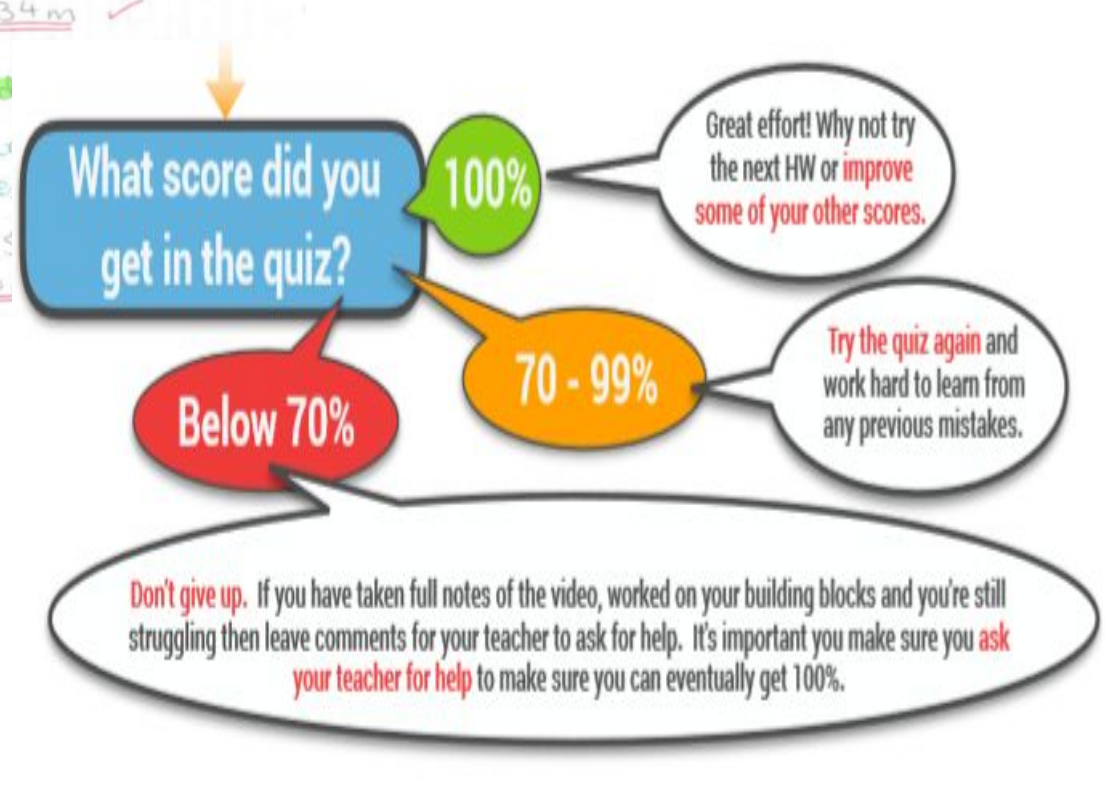


Building blocks – don't understand the video? Building blocks show you the topics you need to understand BEFORE you try this new topic. They act as more support for your learning.
These are always found at the bottom of the page

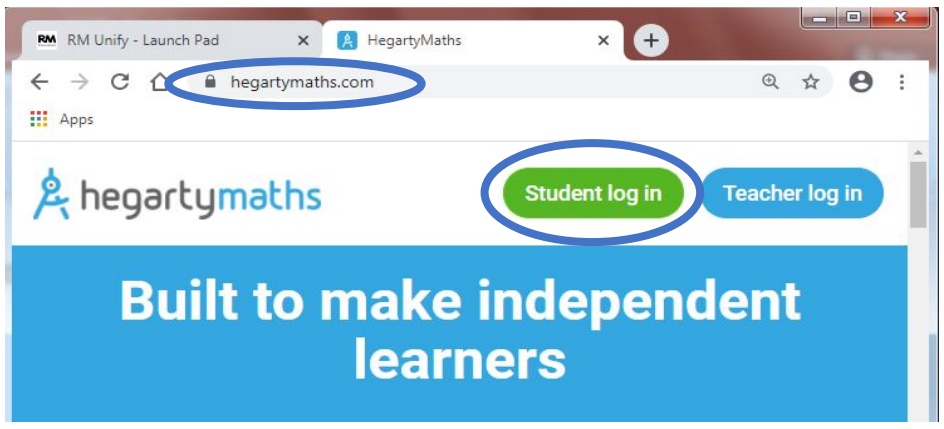


An example of great work – copying the notes and practicing showing off your process when attempting the questions

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

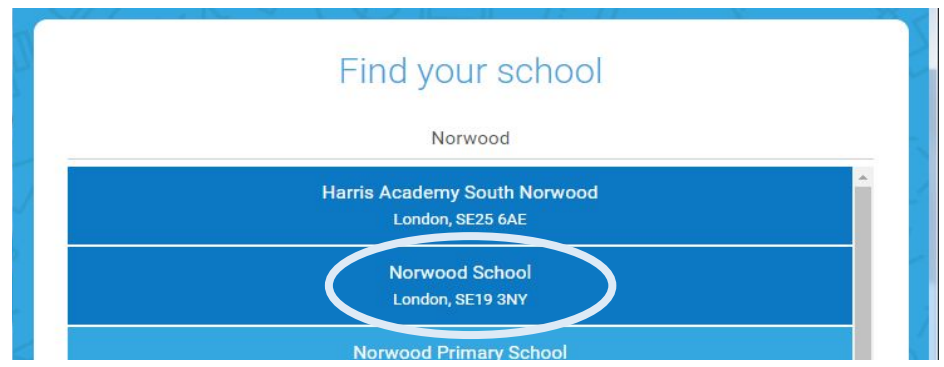


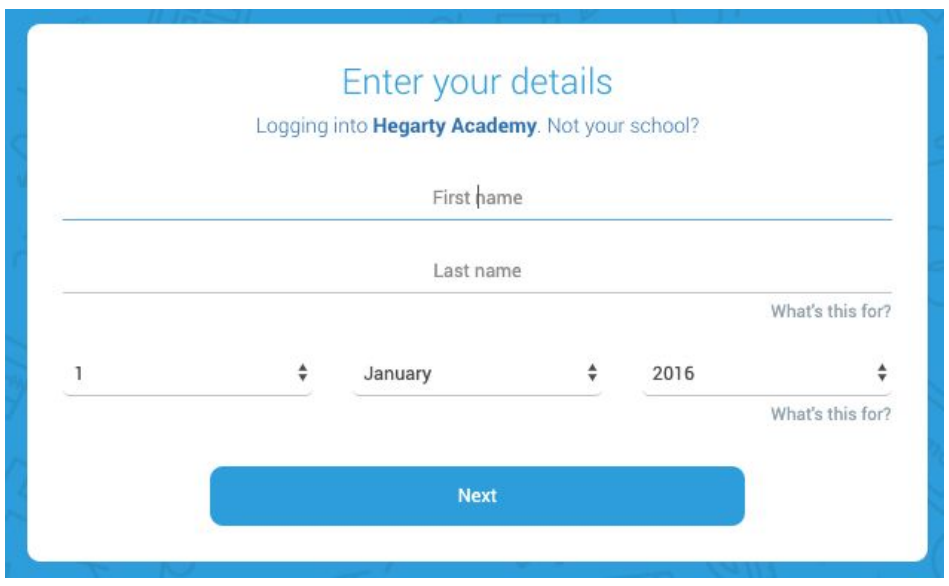
How to log into HegartyMaths



Step 1
From the website, www.hegartymaths.com, click on "Student log in"

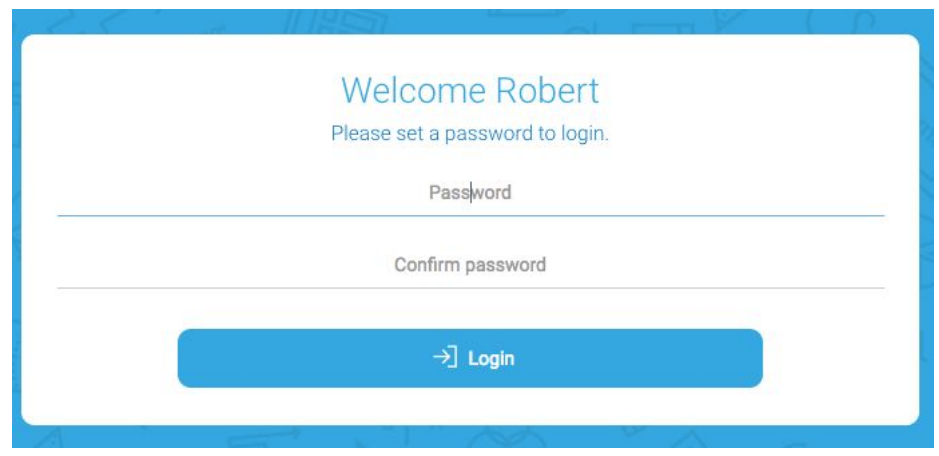
Step 2
Type in 'Norwood' to find our school. It will be the second option

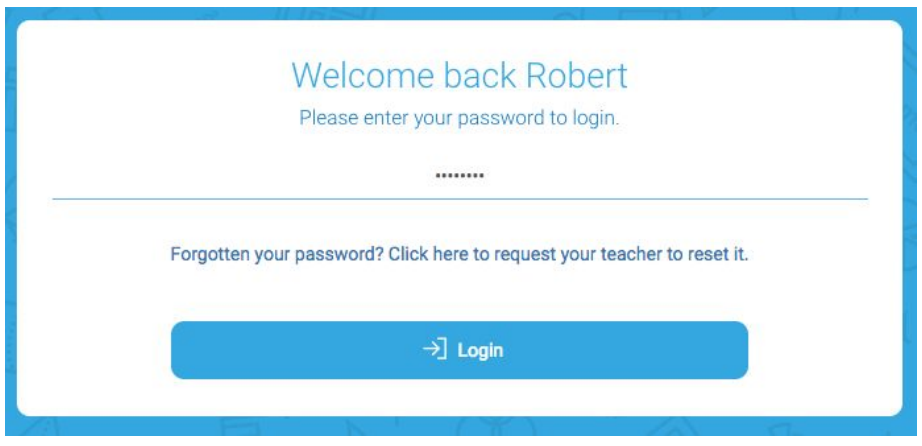




Step 3
Enter First name, Last name, and Date of birth. These must be the same as the details on the school register. Names are cAsE insEnsiTivE, so it doesn't matter if you write them in *lower* case or *UPPER* case or a *MiX*.

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!

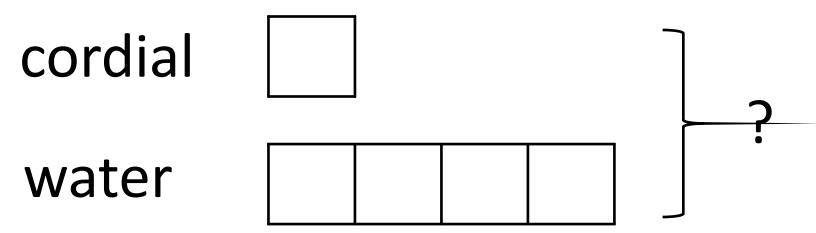
Week 1
Hegarty Clip 332 (Divide in a given ratio)

Attempts:

Score:

Question

Juice is made using cordial and water in a ratio of $1 : 4$
Use the bar model to work out how much juice will be made with 40 ml of cordial.



What if there were 40 ml of water?

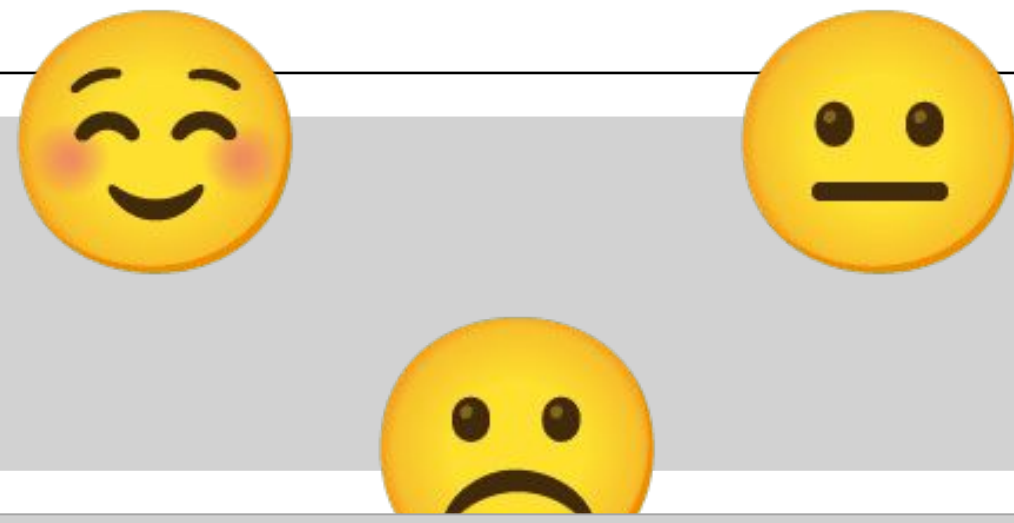
What if there were 40 ml in total?

The ratio of men to women in the doctor's waiting room is 4 : 3
Decide which of these are always, sometimes or never true:

There are more men than women
For every 3 men there are 4 women
There are 7 men and women altogether
If another man walks in the ratio will change to 5 : 3

Can you draw a model to support your answers?

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 331 on Hegarty!

Week 2
Hegarty Clip 339 (Direct Proportion)

Attempts:

Score:

Question

5 scoops of ice cream costs £4.50
How much would it cost for:

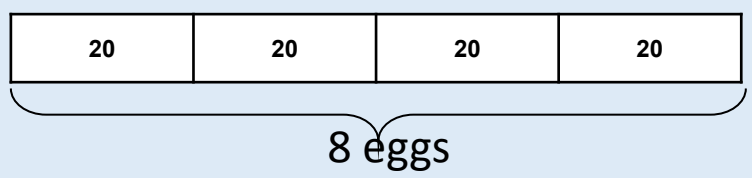
- 10 scoops
- 8 scoops
- 1 scoop
- 9 scoops

A recipe has been stained.
Use everyone's working out to find the missing information.

Carina is making 50 muffins.
50 = '2 and a half lots of 20'
2.5 × 250 = 625 g of sugar

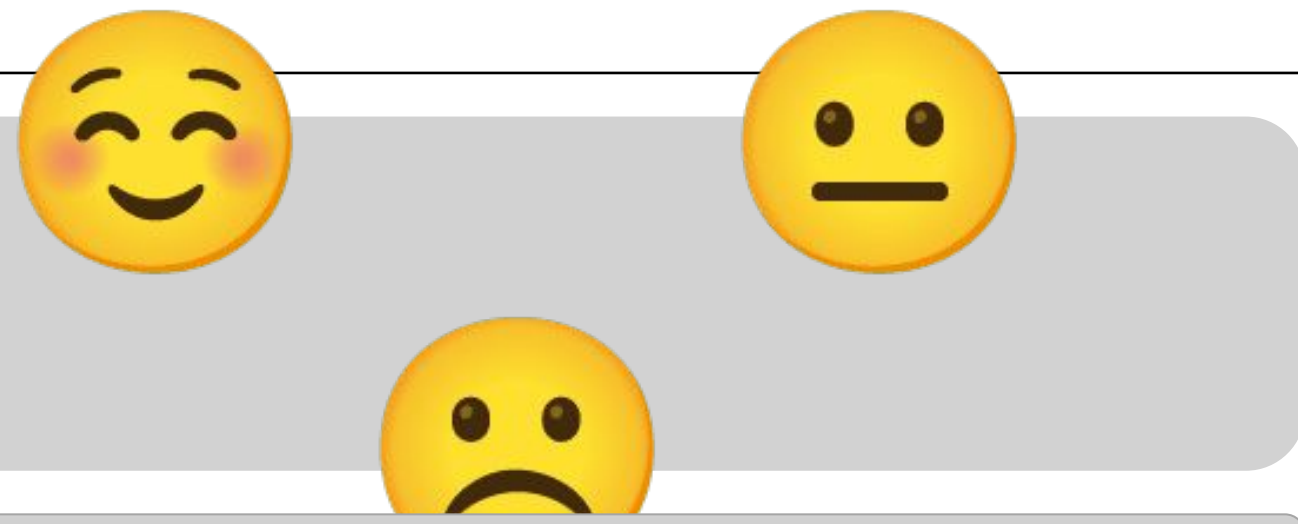
Zaib is making 12 muffins
20 : 250 ml
1 : 12.5 ml
12 : 150 ml
150 ml of milk

Emma is making 80 muffins.



Daniel is making 5 muffins.
20 ÷ 5 = **4**
"I need **4** times less than the recipe
I will use 100g of flour".

Use this space for notetaking and working from Hegarty video



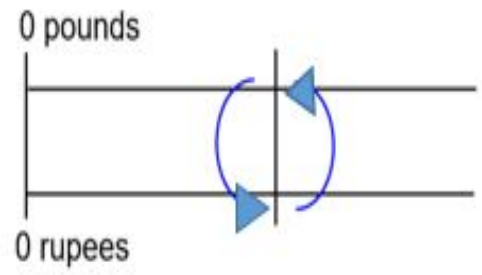
If you want to work even more on this topic, try task 708 on Hegarty!

Week 3
Hegarty Clip 707 (Convert between currencies)

Attempts: Score:

Question

£1 = 90 Rupees
Copy and complete the number line.
Alex calculates changing 200 rupees into £.
Her answer is £18 000
Does this seem right?
Explain why or why not.

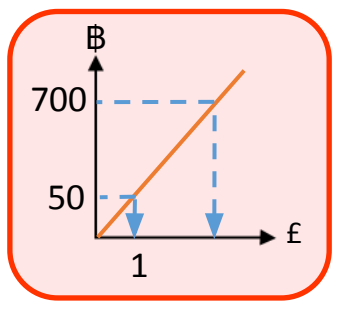


Write a sentence explaining what each of these calculations works out.

400×90 $400 \div 90$ 800×90

1 British pound (£) is approximately 50 Thai Baht (฿)

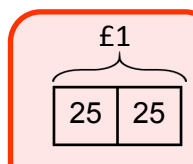
Explain how each of these representations could be used to convert 700 ฿ into pounds.
Why do they all work?

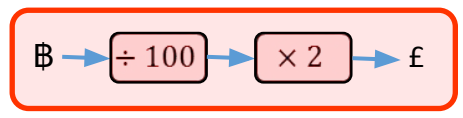


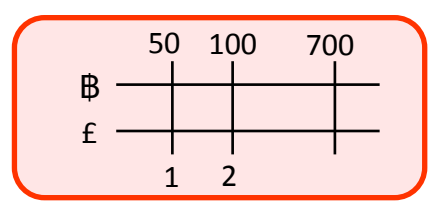
$1:50$
$?:700$

$700฿ \times (\frac{£1}{50฿})$

$\times 0.02$

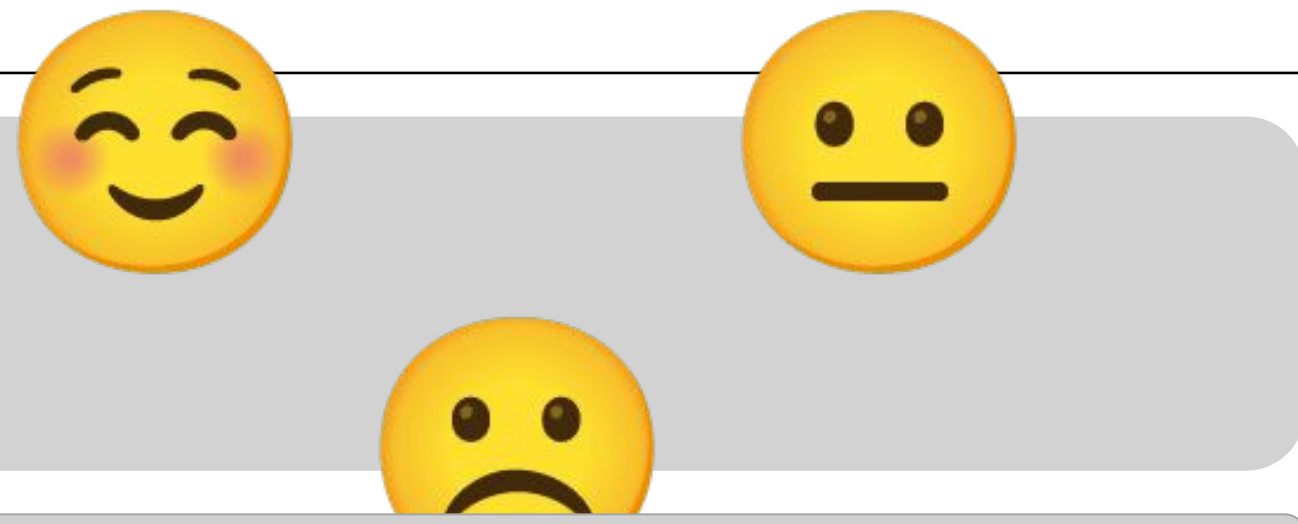






$p = \frac{b}{50}$
where p = number of pounds and b = number of baht

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 708 on Hegarty!

Week 4
Hegarty Clip 68 (Multiplying Fractions)

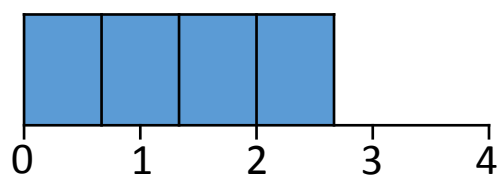
Attempts:

Score:

Question

This bar model shows that $4 \times \frac{2}{3} = \frac{8}{3}$

It also shows $\frac{8}{3} = 2\frac{2}{3}$



Use the bar model (or other method) to work out

$3 \times \frac{2}{3}$ $8 \times \frac{2}{3}$ $\frac{2}{3} \times 5$ $1.5 \times \frac{4}{3}$

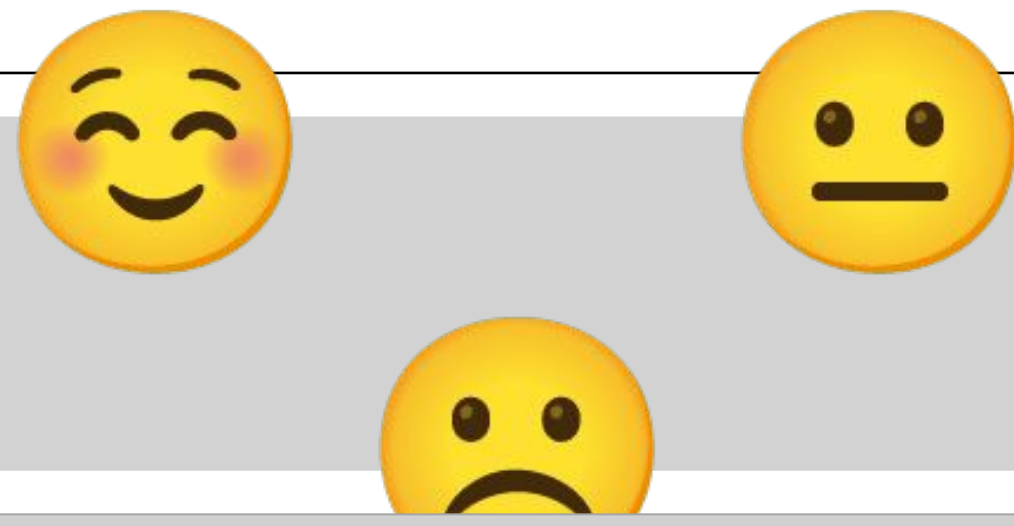
Find the missing numbers.
Do any have more than one answer?

$\frac{1}{5} \times \frac{1}{6} = \frac{1}{?}$

$\frac{1}{3} \times \frac{1}{?} = \frac{1}{30}$

$\frac{1}{?} \times \frac{1}{?} = \frac{1}{30}$

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 72 on Hegarty!

Week 5
Hegarty Clip 70 (Dividing Fractions)

Attempts:

Score:

Question

Work out the following.

$4 \div \frac{1}{2}$ $4 \div \frac{1}{3}$ $4 \div \frac{1}{4}$ $4 \div \frac{1}{5}$

$4 \div \frac{1}{13}$ $8 \div \frac{1}{13}$ $8 \div \frac{1}{n}$ $a \div \frac{1}{n}$

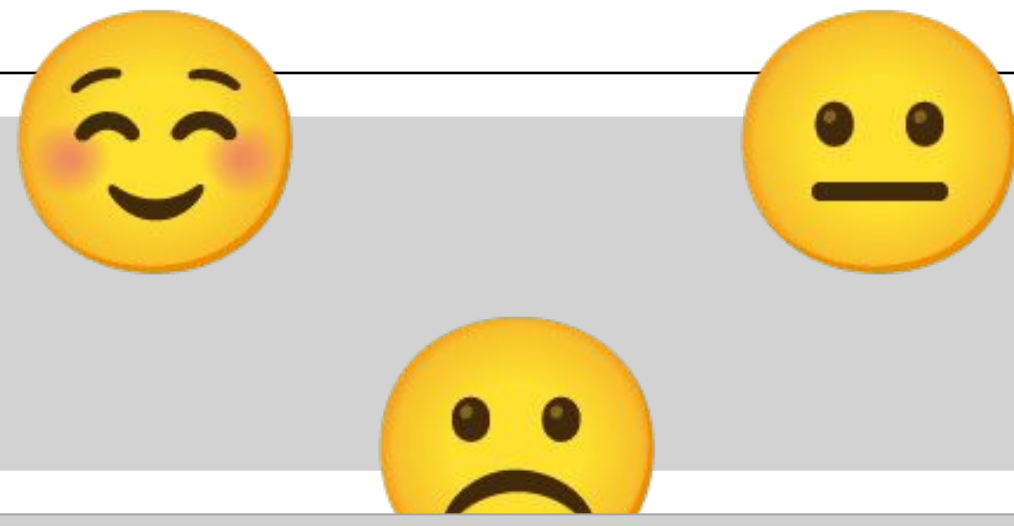
Eva and Rosie are playing a game with 4 dice arranged in a calculation. If the answer is a whole number you win a point.

$\frac{\square}{\square} \div \frac{\square}{\square} =$

What numbers could Eva roll to score a point?

Here is Rosie's roll. Can she score a point?

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 90 on Hegarty!

Week 6
Hegarty Clip 199 (Coordinates in 4 quadrants)

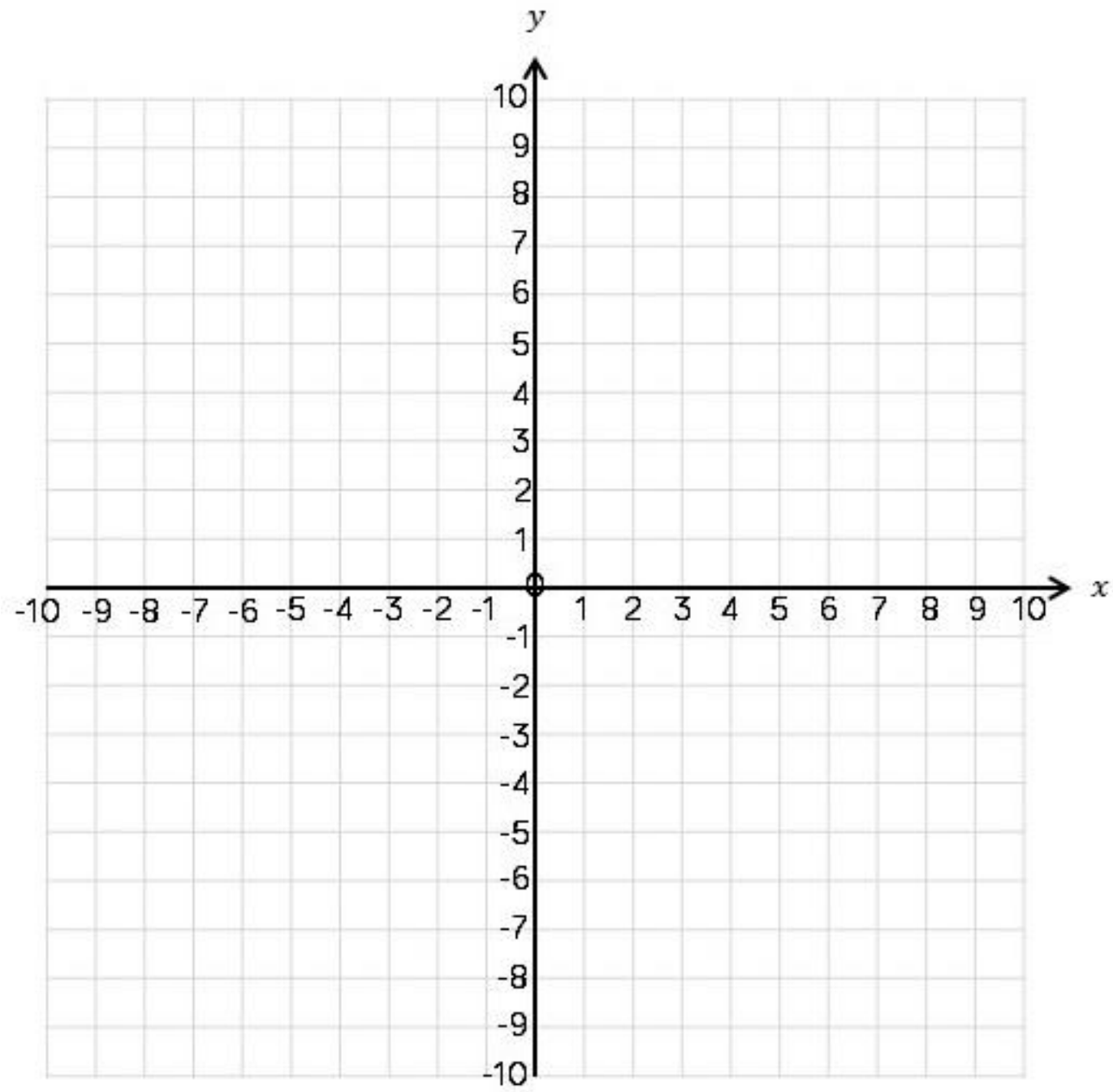
Attempts:

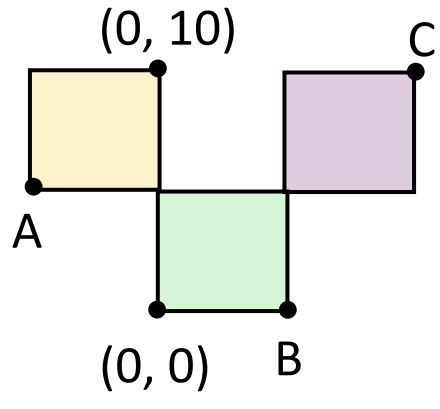
Score:

Question

Plot the coordinates
$(1, -4), (7, 3), (-4, 3), (9, -5)$
on a coordinate grid.

Which two coordinates are on the same line?
Which coordinate is in the second quadrant?



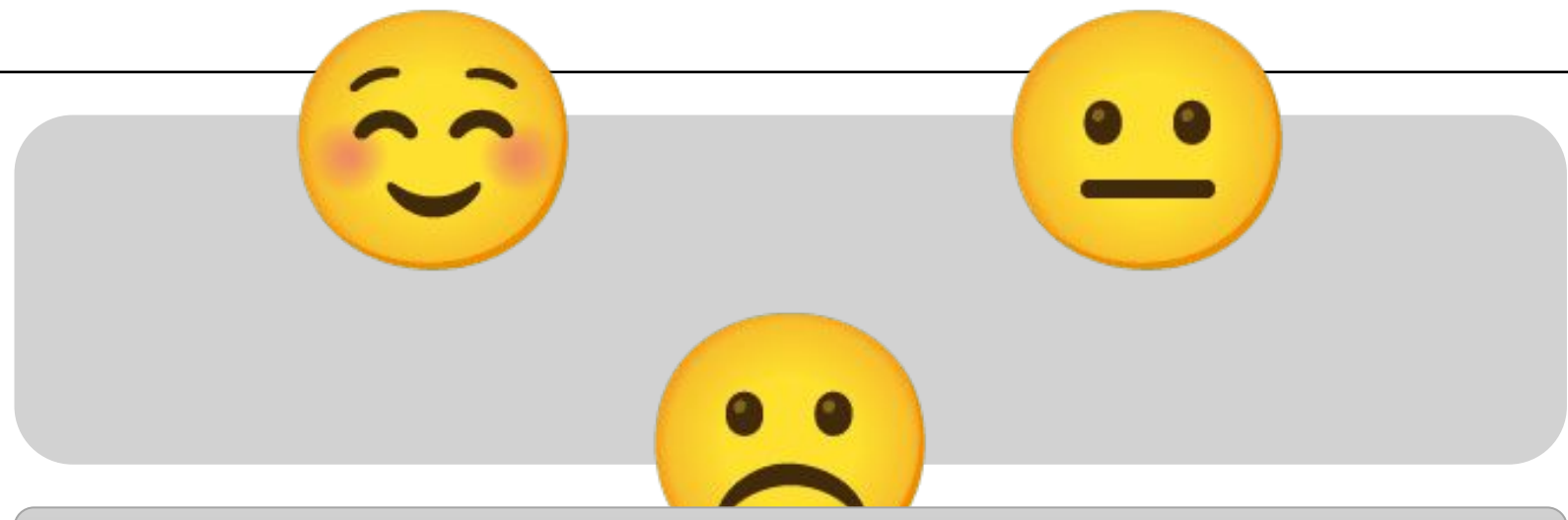


Three identical squares are shown.

Work out the coordinates of the points A, B and C.

Explain your strategy.

Use this space for notetaking and working from Hegarty video



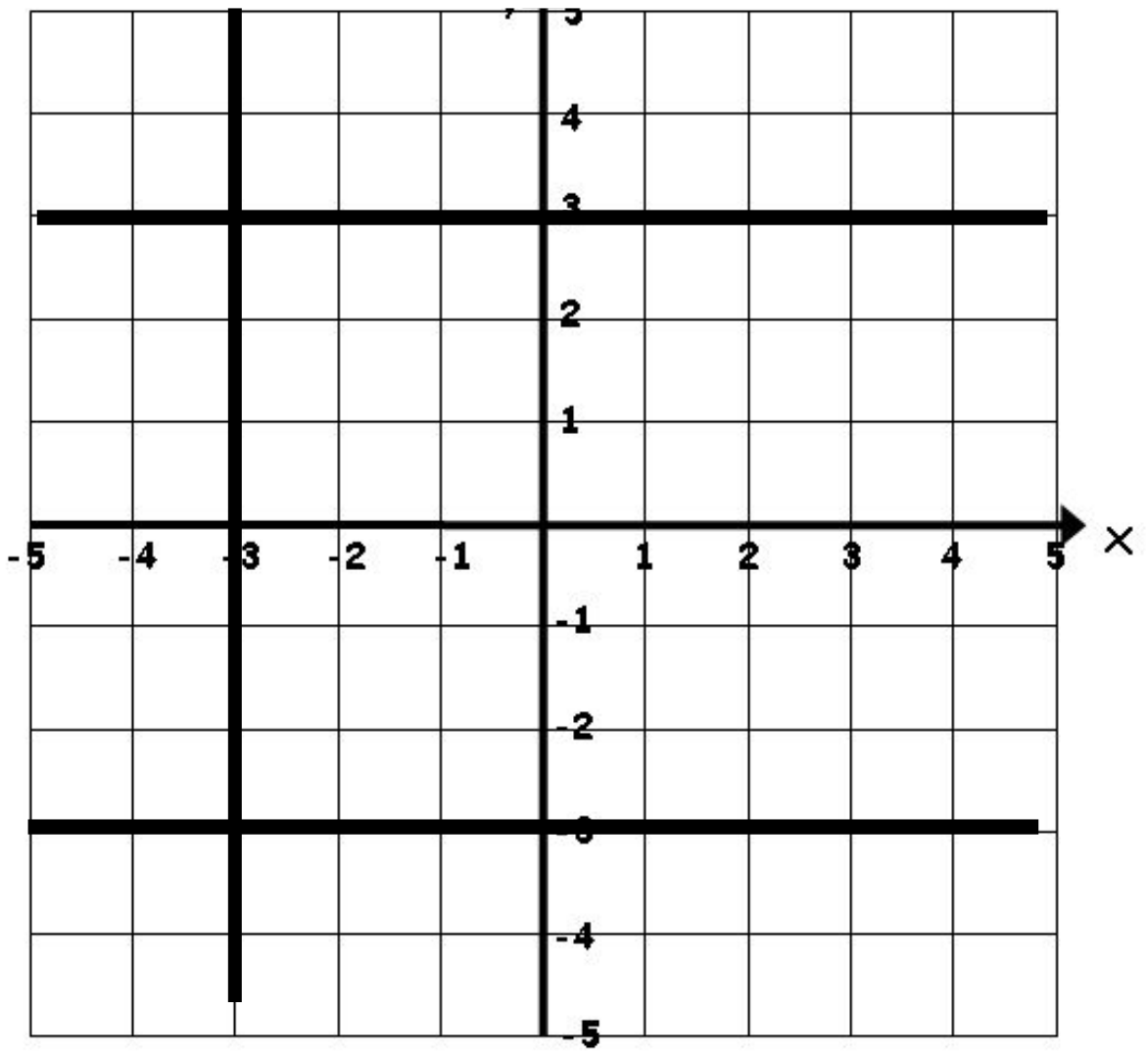
If you want to work even more on this topic, try task 200 on Hegarty!

Week 1
Hegarty Clip 206 (Straight Line Graphs)

Attempts:

Score:

Question



Write down the equations of the lines shown.

Label the lines with their equations. Draw the line $x = 4$ onto the grid.

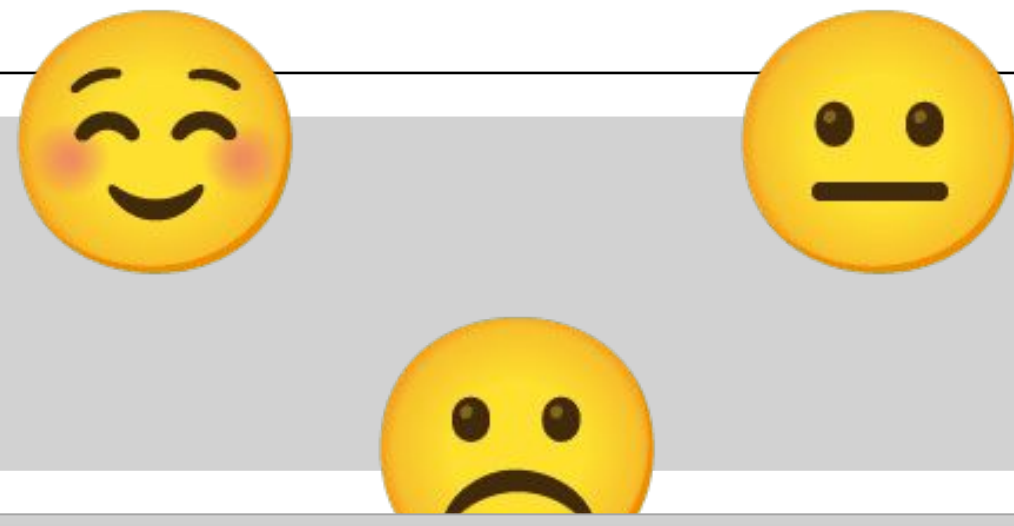
Write down the coordinates of the points where the lines intersect.

Which of the following points will lie **on** the line $y = x$?
Which of the others lie above the line $y = x$, and which lie below?

$(19, 19)$ $(-10, -9-1)$ $(8, 7)$ $(7, 8)$

(a, a) $(0.3, 0.3)$ $(b \times 2\ , b + b)$ $(6, -6)$

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 207 on Hegarty!

Week 2

Hegarty Clip 453 (Draw scatter graphs)

Attempts:

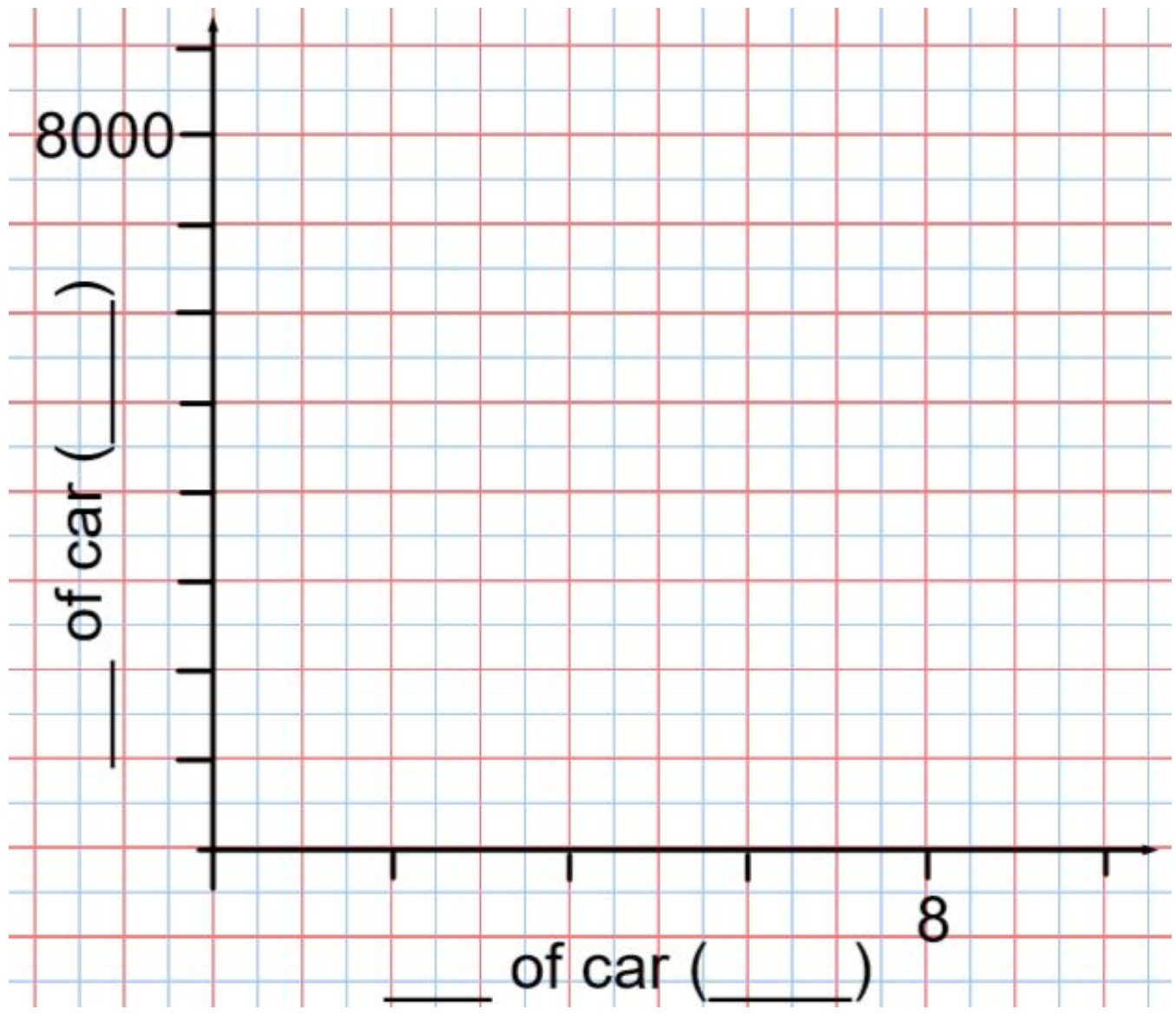
Score:

Question

The table shows the age and value of a car.

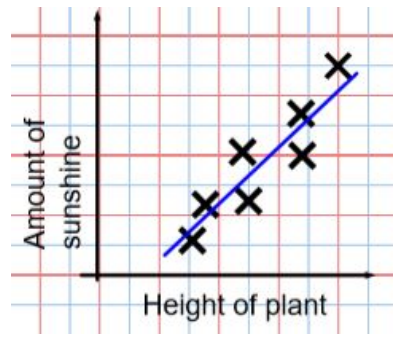
Age of Car (Years)	2	4	6	8	10
Value of Car (£s)	7500	6250	4000	3500	2500

Complete the pair of axes.
Now use the data in the table to generate coordinates and plot them on the graph.
Complete the sentence,
As the age of the car _____,
the value of the car _____.
Do you think this will always be true?
Explain your answer.

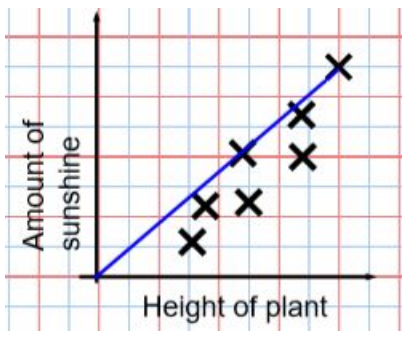


Jack and Dora are both drawing a line of best fit.
Whose method is better? Explain why.

Dora



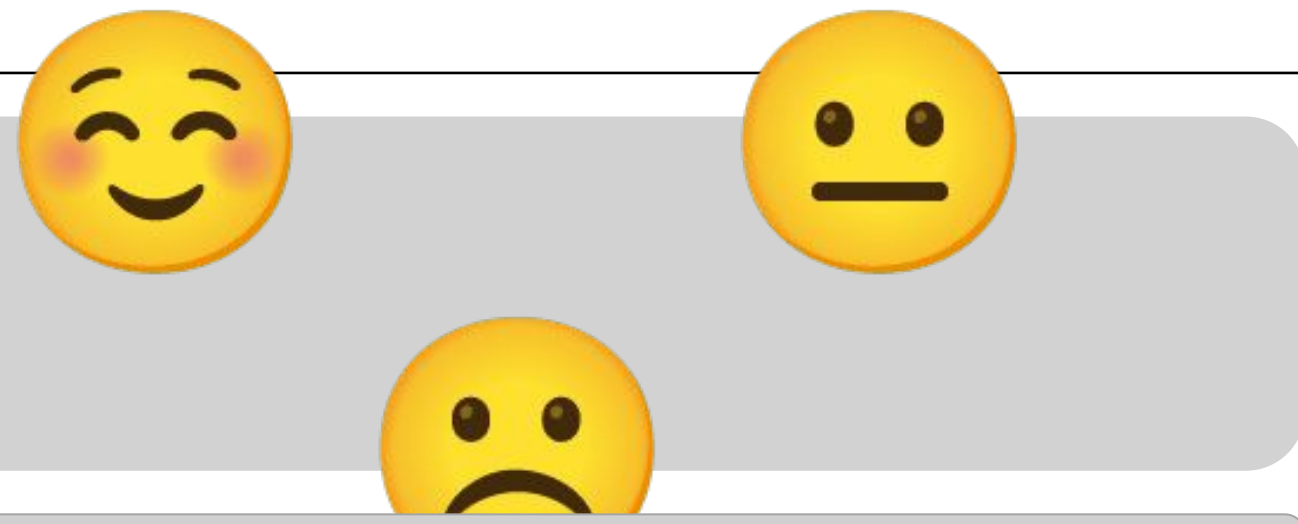
Jack



Jack has joined the point representing the tallest plant with the origin.

Dora has wiggled her ruler around until there are roughly the same number of points on each side of the line.

Use this space for notetaking and working from Hegarty video



If you want to work even more on this topic, try task 454 on Hegarty!

Week 3
Hegarty Clip 392 (Types of data)

Attempts:

Score:

Question

Sort the statements into discrete and continuous data.
Two of the statements don't belong in either category, why?

Number of school buses

Speed of school buses

Age of a person

Favourite colour

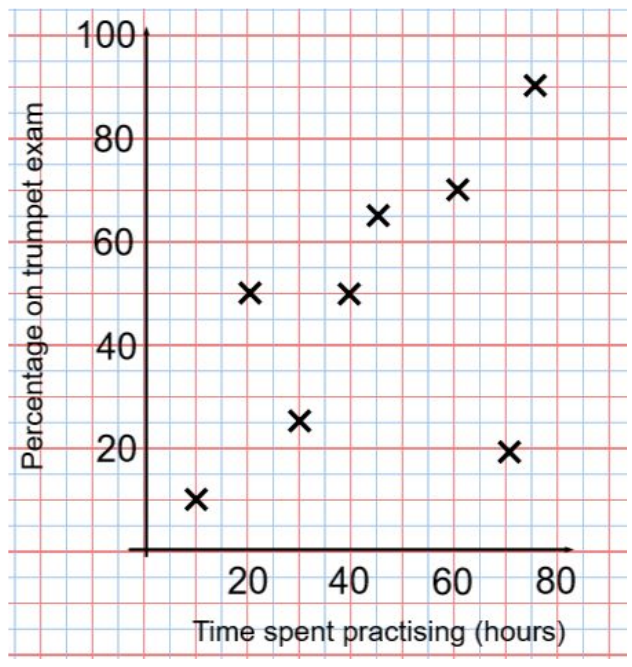
Cost of apples

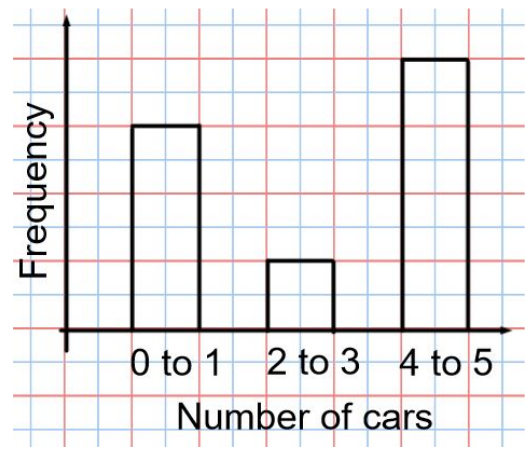
Make of mobile phone

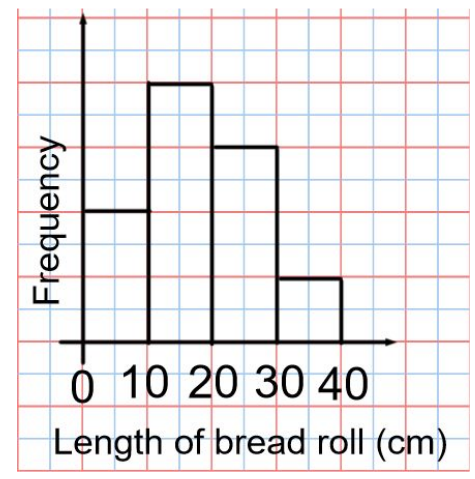
Discrete Data:
E.g. Number of children on a bus

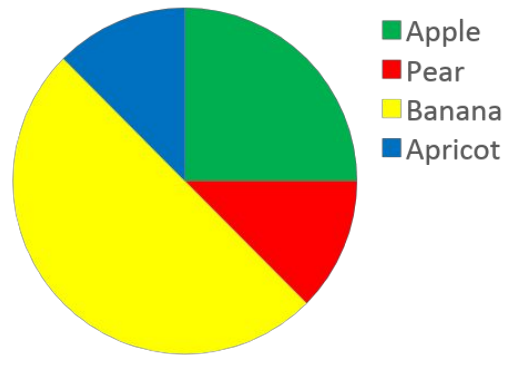
Continuous Data:
E.g. Heights of children on a bus

For each graph and chart, decide what type of data is being represented, discrete, continuous or qualitative.









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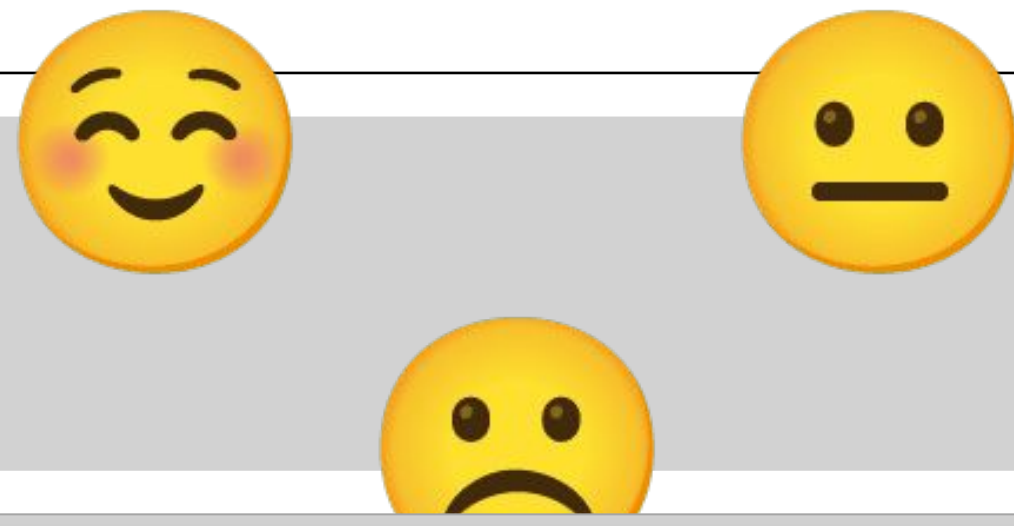


If you want to work even more on this topic, try task 393 on Hegarty!

Week 4
Hegarty Clip 402 (Grouped discrete data)

Attempts: Score:

Question

Dexter asks 10 children in his class how many siblings they have. Here is his list: 4, 1, 0, 2, 1, 2, 0, 1, 2, 2

Dexter doesn't think he needs the row in his table for 3 siblings.

Is he right? Explain your answer.

Complete the frequency table.

Number of siblings	Frequency
0	
1	3
2	
3	
4	1

Number of books	Frequency
0 – 10	2
11 – [blotch]	3
21 – 30	[blotch]
[blotch] – 40	1

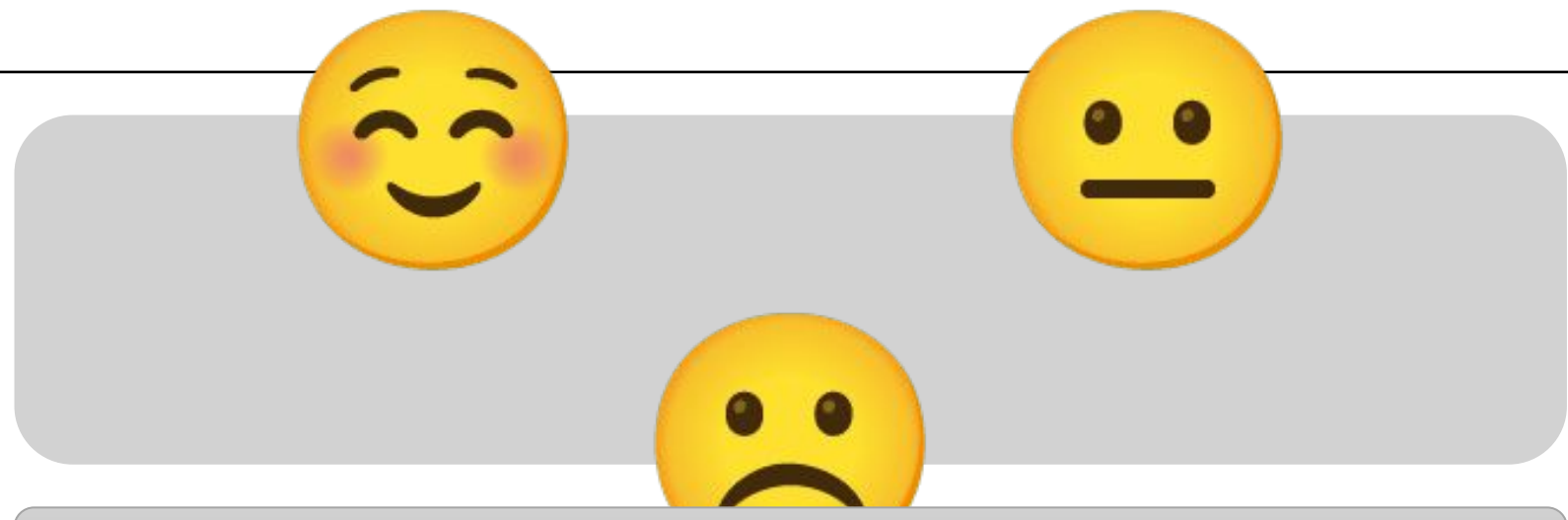
A group of 15 children were asked how many books they had in their house.
When results were put in a table, the pen leaked to leave blotches. What numbers are beneath the blotches?

Tommy thinks that 1 person had 40 books in their house.

Mo thinks that 1 person had 35 books in their house.
What do you think?

Alex thinks that the range of the number of books could be as much as 40 or as little as 21. Is she right? Explain why.

Use this space for notetaking and working from Hegarty video



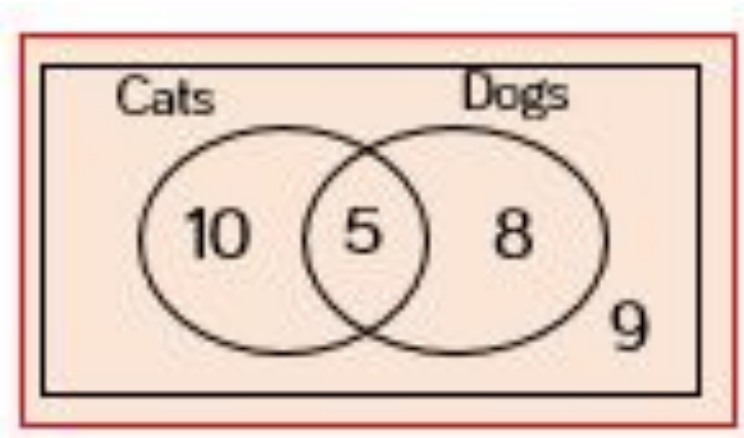
If you want to work even more on this topic, try task 403 on Hegarty!

Week 5
Hegarty Clip 383 (Probability from Venn Diagrams)

Attempts: Score:

Question

The Venn diagram shows how many students in a class own cats, dogs or both. A student is picked at random from the class. Find:



P(They own a cat but not a dog)

P(They own a cat)

P(They own a dog)

P(They do not own a dog)

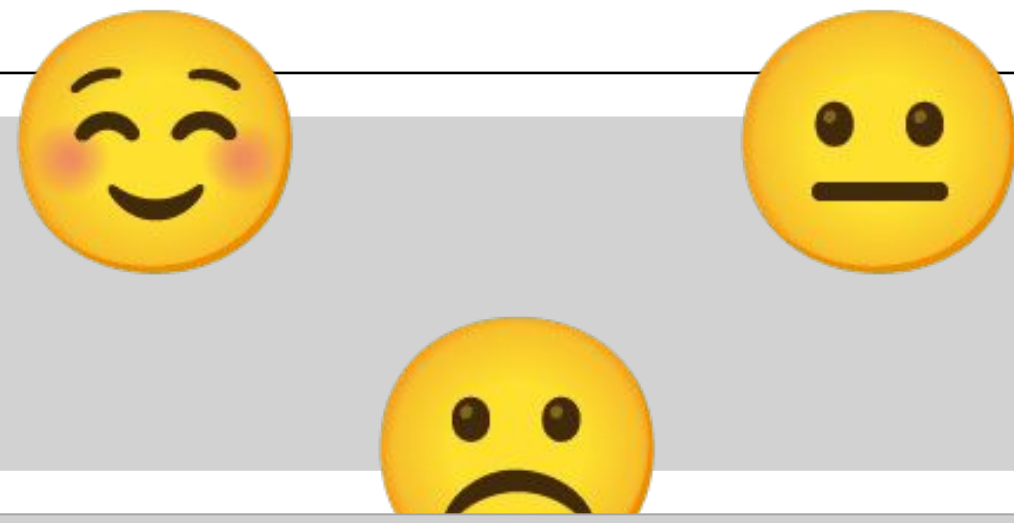
P(They own both a cat and a dog)

P(They own neither a cat nor a dog)

In a group of 45 people, 15 belong to a cricket club, 18 belong to a tennis club and 9 belong to both a cricket and a tennis club.
Draw a Venn diagram to represent this information.
A person is chosen at random from this group.
Find the probability that this person:

- belongs to a cricket and a tennis club
- belongs to a cricket or tennis club
- does not belong to a cricket club
- does not belong to either a cricket or a tennis club
- belongs to a tennis club but not a cricket club.

Use this space for notetaking and working from Hegarty video

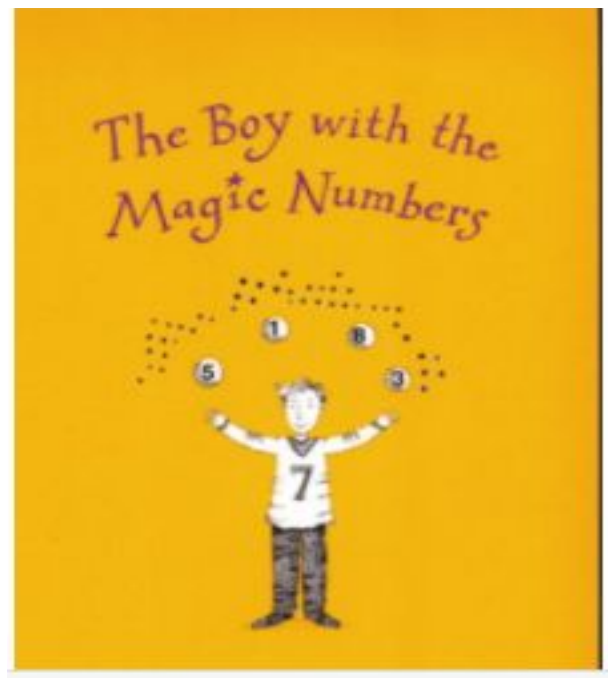


If you want to work even more on this topic, try task 388 on Hegarty!

Recommended Reads!

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

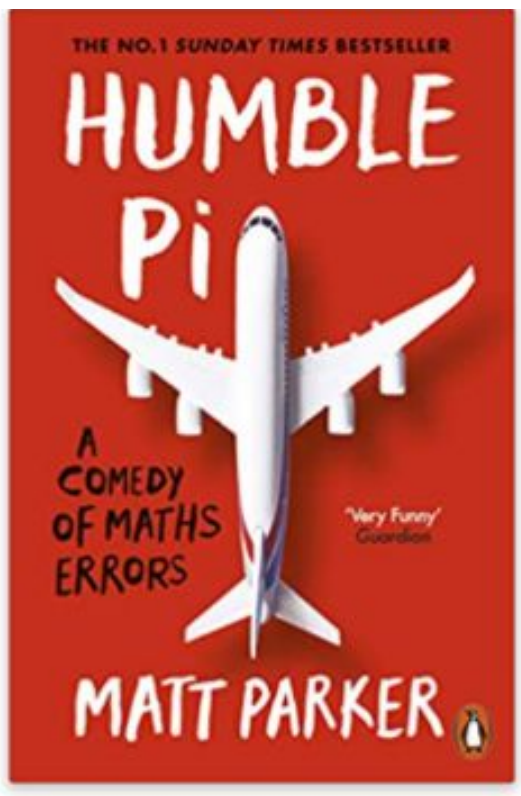
Mr Hayes



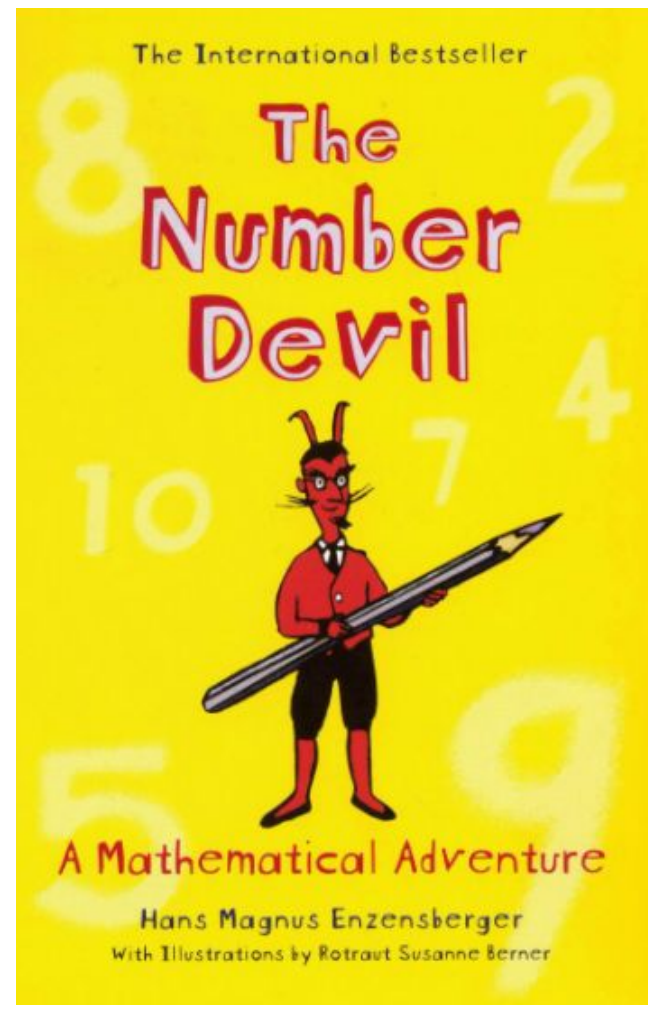
Ms LT

'Sushi Kokuu Hen'

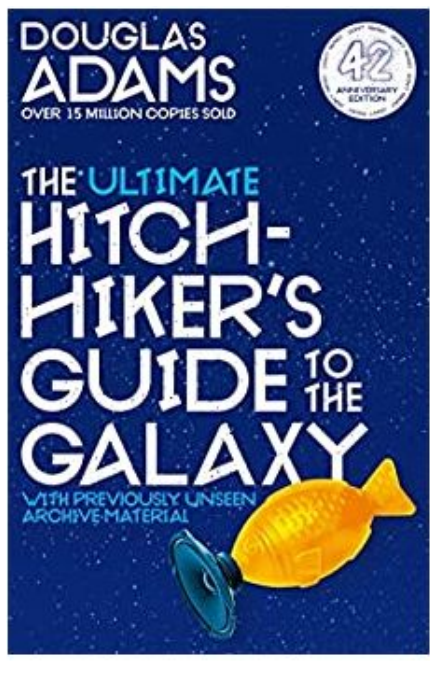
Mr Brown



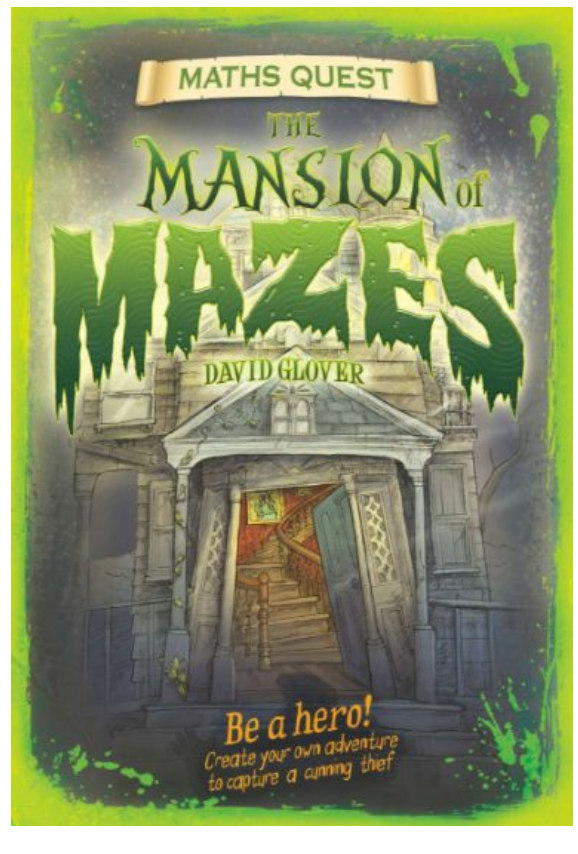
Mr Malone



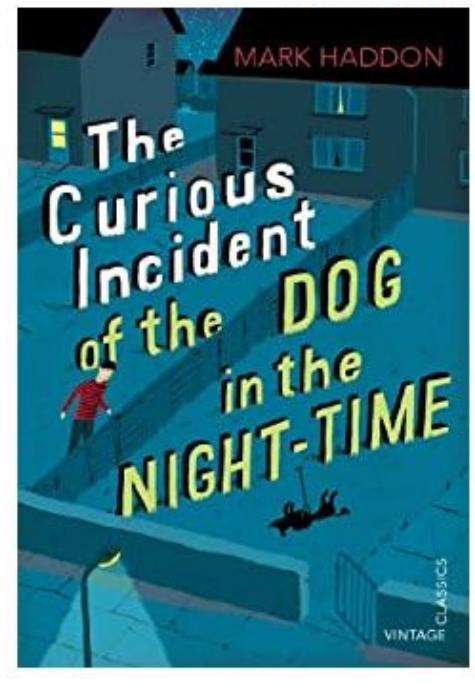
Ms Mendez



Mr U



Ms Ahmed



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

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