

$$F = \frac{ma}{\sqrt{1 - u^2/c^2}} + \frac{m}{(}$$



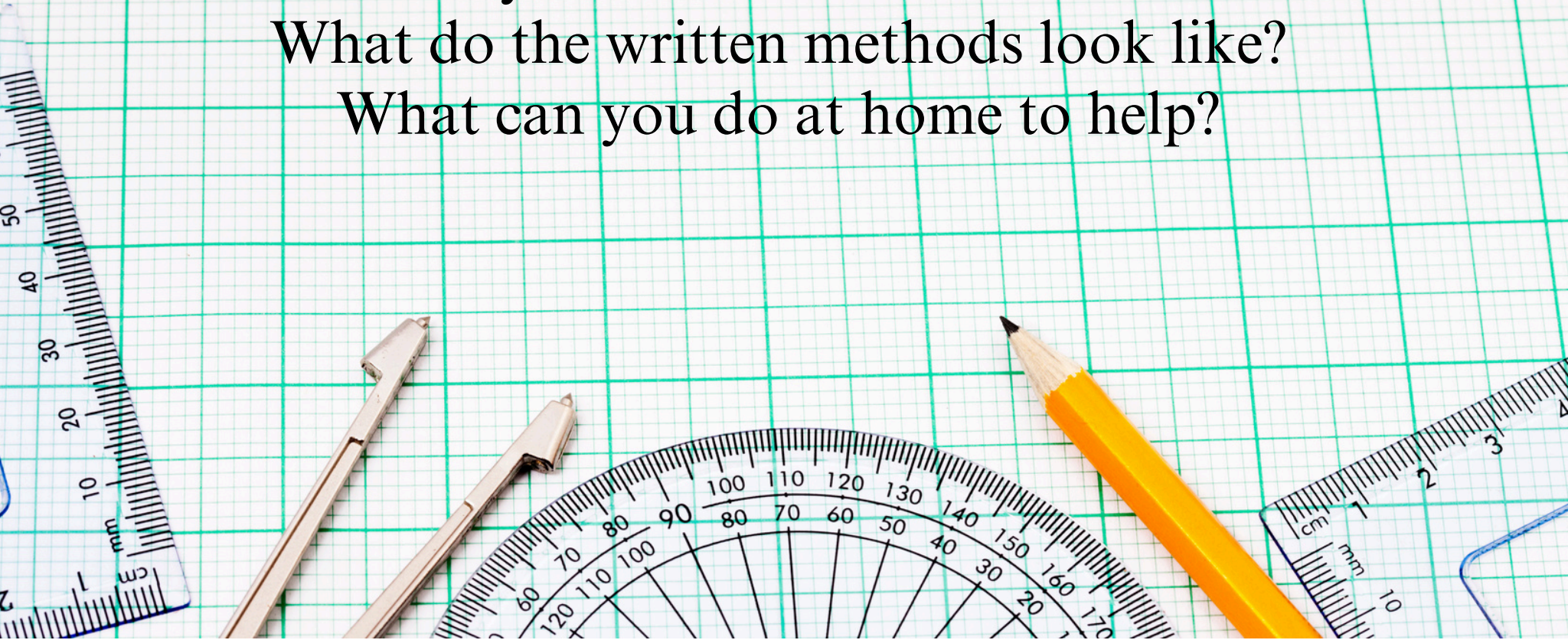
How will children be assessed at the end of KS2

How do we teach it?

Why do we teach it like that?

What do the written methods look like?

What can you do at home to help?



School attainment vs National attainment

Year	2019	2022	2023	2024
School	88%	86%	85%	97%
National	79%	71%	73%	73%

- We can see that national attainment is still below pre pandemic levels of 79% of children reaching ARE.
- School level has been consistent with 2024 being highest attaining cohort.
- However looking at in year data this trend will not continue based on current assessments.

Mathematics

[click to see all text](#)

- Children will sit three tests: Paper 1, Paper 2 and Paper 3.
- Paper 1 is for 'Arithmetic' lasting for 30 minutes, covering calculation methods for all operations, including use of fractions, percentages and decimals.
- Questions gradually increase in difficulty. Not all children will be expected to access some of the more difficult questions later in the paper.
- Papers 2 and 3 cover 'Problem Solving and Reasoning', each lasting for 40 minutes.
- Pupils will still require calculation skills but will need to answer questions in context and decide what is required to find a solution.

[chapter menu](#)

[next page](#)

What is covered?

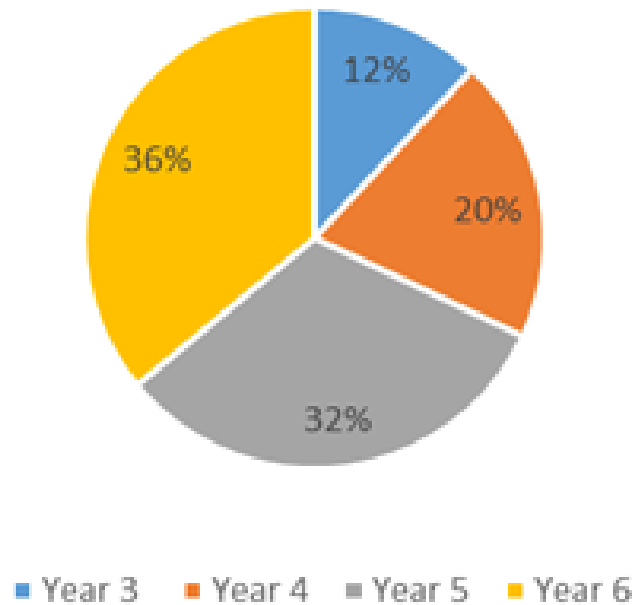
Strand	2023
Number	11
Calculations	32
FDP	26
Ratio	7
Algebra	4
Measurement	8
Shape	5
Position and Direction	2
Statistics	4

Priority of learning and revision

- Calculations
- FDP
- Number

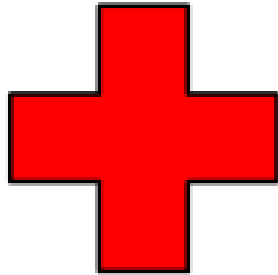
Importance of all year groups

Year group coverage in the KS2 SATS 2023



ADDITION

add
plus
and
total



increase
more
sum
together

SUBTRACTION

take away
minus
less
reduce
remain

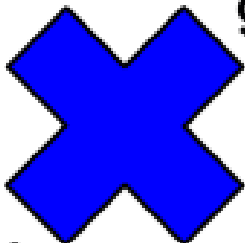


take from
fewer
take
difference
how many more

VOCABULARY

MULTIPLICATION

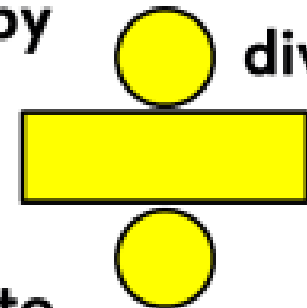
multiply
times
product
multiplied
by



groups of
lots of
doubled
times tables

DIVISION

divided by
share
divide
divide into



divisible by
group
each
share equally



The **RUCSAC** Method for solving maths word problems

R	Read the question carefully	Find the important information - <u>underline</u> it!
U	Understand the question	What do you have to find out? Draw a 'picture' of the question, if it helps.
C	Choose the correct method of calculation	+ - \times \div What method is best for you to use?
S	Solve the problem	Show every step and keep your working out neat.
A	Answer the question	Read the question again - have you answered it? Make the answer clear.
C	Check your answer	Does it make sense? Find a way to check - estimate or use the inverse.

Calculations

Maths Paper 2 / Paper 3 : Reasoning

16

Large pizzas cost £8.50 each.

Small pizzas cost £6.75 each.

Five children together buy one large pizza and three small pizzas.

They share the cost equally.

How much does each child pay?

Show
your
method

£

2 marks

chapter
menu

next page

Calculations



$$57 + \boxed{} = 125$$

$$5 \times \boxed{} = 175$$

17

The manager of a flower shop orders 4 boxes of red roses.

There are 50 roses in each box.

The manager makes bunches with 6 roses in each bunch.

What is the **greatest** number of bunches that can be made?

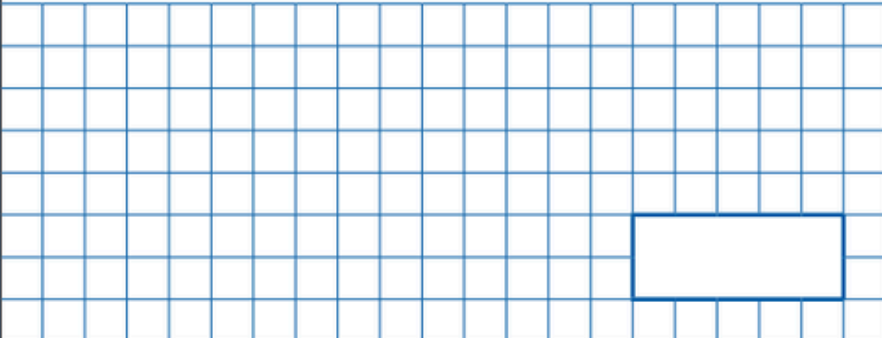
Show
your
method

2 marks

Sample Questions

Maths Paper 1: Arithmetic

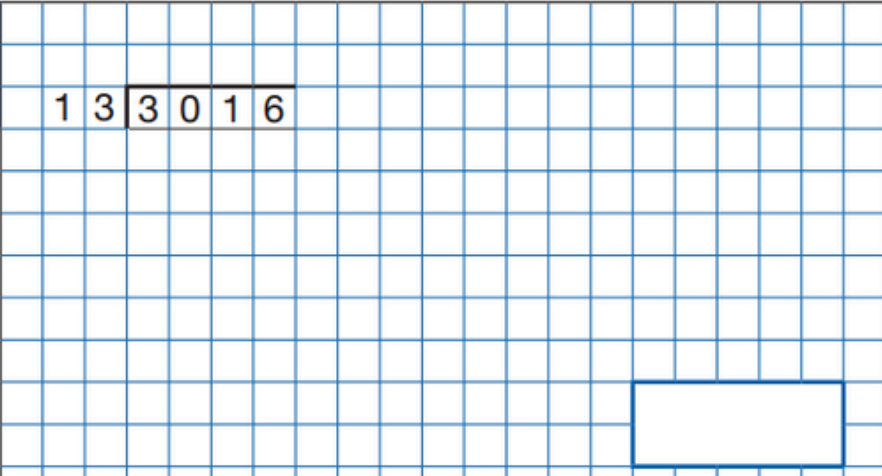
24 $15.4 - 8.88 =$



1 mark

25 1 3 | 3 0 1 6

Show your method



2 marks

chapter
menu

next page

Importance of Times Table Knowledge

- Application in daily life.
- Integral to developing basic mathematical building blocks.
- Building confidence with more complex tasks.
- Gaining a conceptual understanding of multiplication and deeper thinking process.
- Improving problem-solving abilities.
- Developing key skills and 'number sense'

Your child has to have a rapid recall of their multiplication facts to 12 x12 and be able to use them to solve larger multiplications.



The SATs arithmetic test is still the key to achieving good maths results

- Of the three maths papers, the arithmetic paper is the easiest to prepare the children for. There are also far fewer surprises in this paper, compared to the two reasoning papers. As a result, children generally achieve higher scores in this paper.
- This year, only 56 marks were required across the 3 papers for pupils to achieve the expected standard. With this in mind, if children were to achieve a score of 30 out of 40 in the arithmetic paper, they then only needed a total of 26 marks (37%) across the 2 reasoning papers to be considered as having reached the expected standard.
- Arithmetic paper there is absolutely zero language. The children need no reasoning skills whatsoever but need to ensure they can work at pace.

We have found the last set of assessments that the following areas need to be worked on

- 4 operations with fractions
- Adding and Subtracting decimals
- Converting Fractions, decimals and percentages
- Multiplying and dividing.
-

Four Operations with Fractions

How to Multiply Fractions



Maths Ang



General
Method:

$$\frac{4}{7} \times \frac{3}{8} = \frac{4 \times 3}{7 \times 8} = \frac{12}{56} = \frac{3}{14}$$

Multiply numerators

Multiply denominators

Simplify

$\div 4$

$\div 4$

K.F.C.

Keep the first fraction

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

Flip the second fraction

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

Change the sign and multiply

$$\frac{1}{2} \times \frac{4}{3} = \frac{4}{6}$$



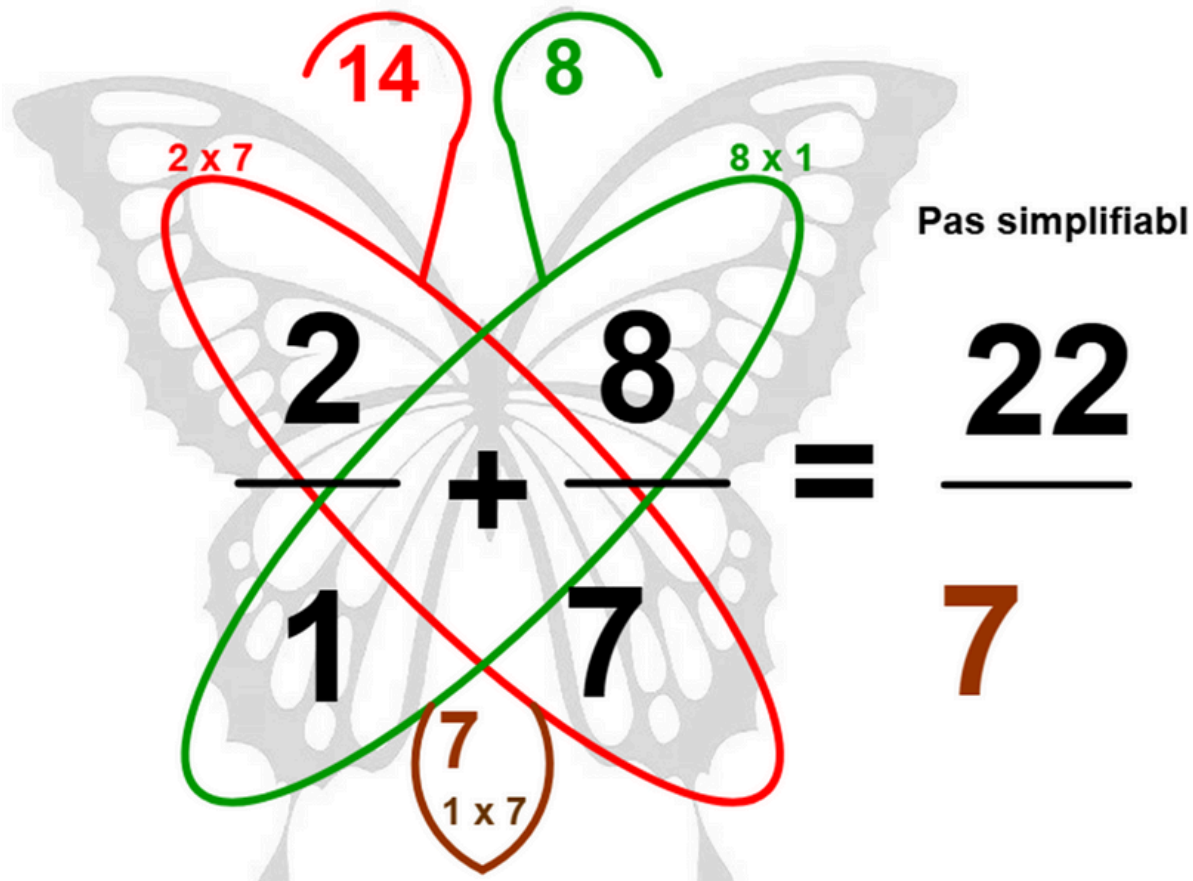
Same Denominators

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

↓

$$\frac{1+3}{5} = \frac{4}{5}$$

Adding fractions with different denominators



The diagram illustrates the butterfly method for adding the fractions $\frac{2}{1} + \frac{8}{7}$. The numerators 2 and 8 are crossed to form two loops. The first loop, colored red, connects the 2 to the 7, with the calculation $2 \times 7 = 14$ shown above it. The second loop, colored green, connects the 8 to the 1, with the calculation $8 \times 1 = 8$ shown above it. The common denominator 7 is written in brown below the plus sign, with the calculation $1 \times 7 = 7$ shown below it. The final result is $\frac{22}{7}$, with the text "Pas simplifiabl" above the fraction bar.

$$\frac{2}{1} + \frac{8}{7} = \frac{22}{7}$$

Pas simplifiabl

Find the mean average of these numbers

5, 12, 20, 3, 10

$$5232 \div 3$$

I have a number, I multiply it by 3 and then add 4 my number is now 19. What was my original number?

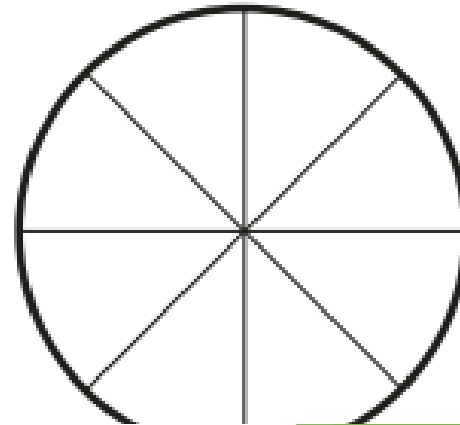
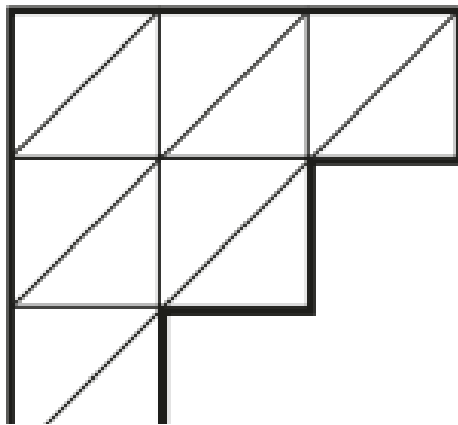
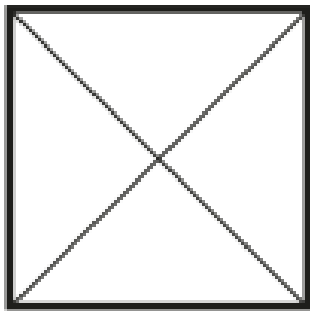
$$\frac{3}{8} \text{ of } 24 =$$

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	
	0.75	75%
$\frac{2}{5}$		40%

$$12.34 + 3.345 =$$

FDP (Fractions, Decimals and Percentages)

- Children will need to perform all 4 operations with fractions and mixed numbers.
- Order fractions and decimals.
- Match equivalent fractions, decimals and percentages.
- They will have to find percentages of amounts (usually in multiples of 5%)
- Be able to show fractions visually (what shape is $\frac{1}{3}$ shaded? etc)



5

[2017]

$$\frac{3}{4} - \frac{3}{8} =$$

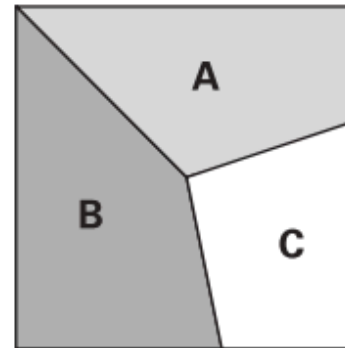
$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} =$$

$$\frac{3}{5} \div 3 =$$

16

[2002]

This square is divided into three parts.



Part **A** is $\frac{1}{3}$ of the area of the square.

Part **B** is $\frac{2}{5}$ of the area of the square.

What fraction of the area of the square is part **C**?

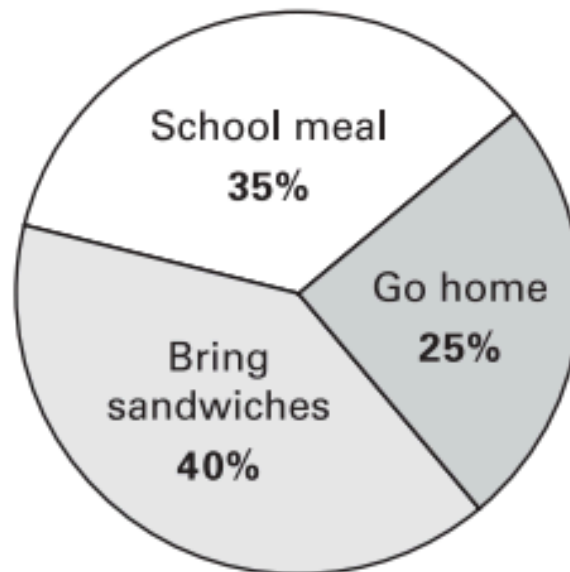
2

20% of 1,800 =

3

60% of 765 =

This pie chart shows the lunch choices of year 6 children at a school.



28 children in year 6 have a school meal.

How many **go home** for lunch?

The Aim



- for children to do mathematics in their heads, and if the numbers are too large, to use pencil and paper to avoid losing track.
- To do this children need to learn quick and efficient methods, including mental methods and appropriate written methods.

A sledgehammer to crack a nut!

$$\begin{array}{r}
 \begin{array}{cccc}
 0 & 1^9 & 1^9 & 1 \\
 1 & 0 & 0 & 0 \\
 \hline
 - & & & 7 \\
 \hline
 9 & 9 & 3 &
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{cc}
 1 & 0 \\
 16 & \\
 \hline
 - & 9 \\
 \hline
 7 &
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 08 \\
 7 \overline{) 56} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 97 \\
 \times 100 \\
 \hline
 00 \\
 000 \\
 \underline{9700} \\
 \underline{9700}
 \end{array}$$

Partitioning

$$24 \times 5$$

$$20 \times 5 = 100$$

$$4 \times 5 = 20$$

$$100 + 20 = 120$$

Grid Method

$$24 \times 5$$

$$\begin{array}{r|l|l} & 20 & 4 \\ \hline \times 5 & 100 & 20 \end{array}$$

$$100 + 20 = 120$$

[BBC News Video Link](#)

Expanded Multiplication

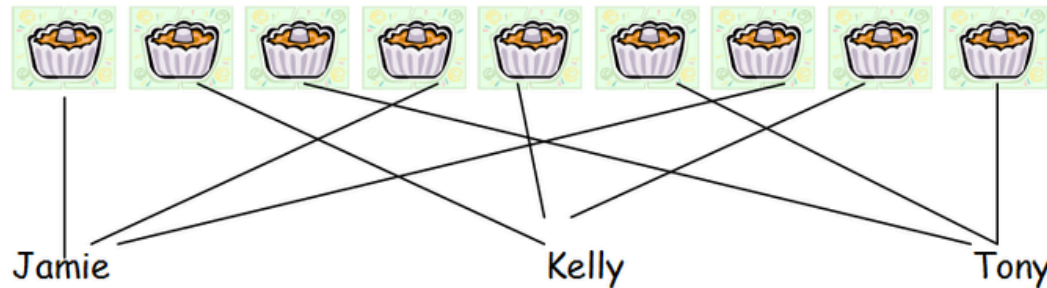
$$\begin{array}{r} 38 \\ \times 7 \\ \hline 210 \\ 56 \\ \hline 266 \end{array} \quad \begin{array}{l} (30 \times 7) \\ (8 \times 7) \end{array}$$

Division

Division

Sharing

The tray had 9 cakes in and they were shared out between Jamie, Kelly and Tony. Each child had the same number of cakes. How many did they have each?



So, $9 \div 3 = 3$

Grouping

The apples need putting into bags with 5 apples in each bag. Julie has 15 apples. How many bags will she need?



So, $15 \div 5 = 3$

$$672 \div 4 = 168$$

Chunking method

$$\begin{array}{r}
 \cancel{5}672 \\
 - 480 \quad (120 \times 4) \\
 \hline
 192 \\
 160 \quad (40 \times 4) \\
 \hline
 032 \\
 32 \quad (8 \times 4) \\
 \hline
 0
 \end{array}$$

$$120 + 40 + 8 = 168$$

Short division method

$$\begin{array}{r}
 168 \\
 4 \overline{) 672} \\
 \underline{6} \\
 07 \\
 \underline{07} \\
 02 \\
 \underline{02} \\
 0
 \end{array}$$

How do these two division methods work?

What is the same about them?

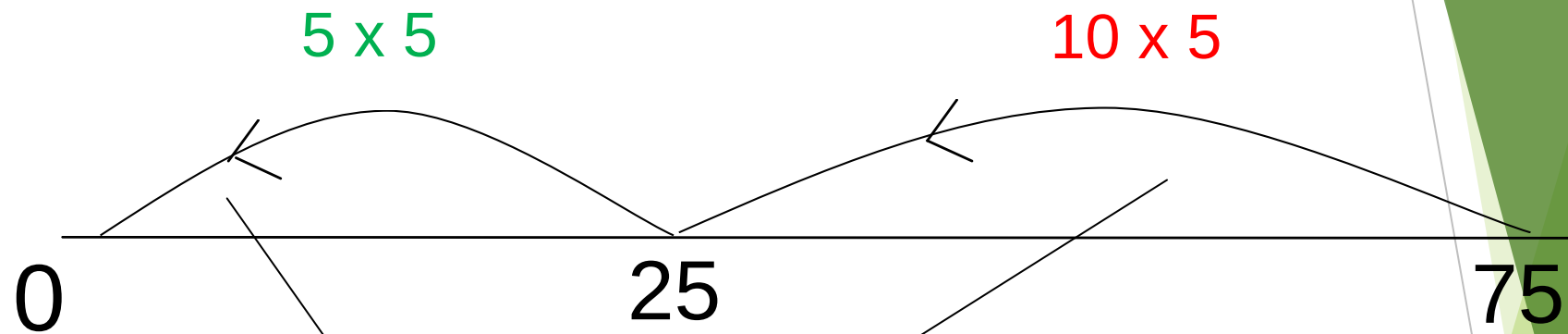


What is different about them?



Chunking

$$75 \div 5$$



$$\begin{array}{r} 75 \\ - 50 \text{ (10 x 5)} \\ \hline 25 \\ - 25 \text{ (5 x 5)} \\ \hline 0 \end{array}$$

$$75 \div 5 = 15$$

Need to
know
tables!

[BBC News Video Link](#)

Helping at home

- Repetition - allow your child to continuously practice new methods and skills using different numbers. If they can do a worked example change the numbers and get them to repeat the process of their learning.
- Show them examples of everyday maths learning - more often than ever assessments will include examples of %discounts and FDP of recipes - children need to be exposed to this.
- Talk about their answers and what they learnt at school. It is important for your child to be able to explain the method they are learning at school. It is also really important for them to explain how they find an answer and be able to explain why a answer is wrong.
- Times tables, Times tables, times tables - Your child must know these inside out to be best equipped to tackle these more challenge mathematical concepts. TT rockstars on their phone or ipad for 10minutes a day.
- Mymaths homework that is set will be what is being covered in class - please ensure your child is completing it and that you are aware of what they are doing on it.
- If the school offer you extra interventions please make sure you are taking them up on this offer!

Helping at home

...And Some Don'ts!

- **Don't expect them to understand after you've explained it once**
- It is normal for a child to 'get it' one day, and then in a different context not know how to find an answer
- **Don't tell them you are hopeless at maths**
- You may remember maths as being hard, but you were probably not hopeless, and even if you were, that implies to your child, “I was hopeless at maths, and I'm a successful adult, therefore maths is not important”
- **Don't get into an argument over homework**
- It will be something that your child has covered in class, and if they really can't do it without a lot of tears and frustration, leave it and LET US KNOW!