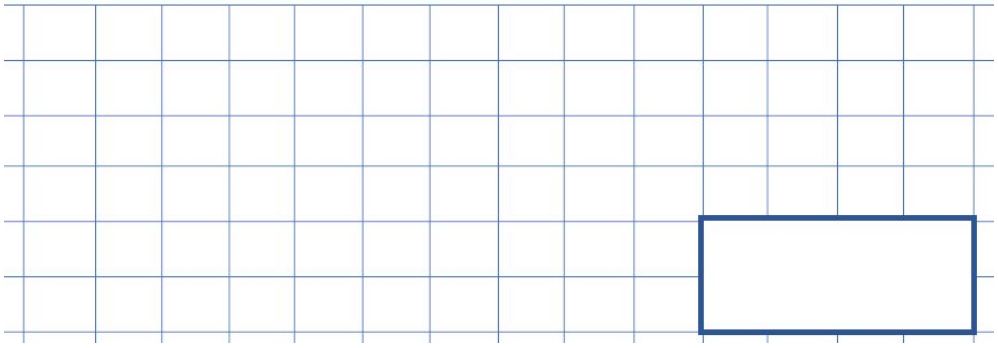
# Multiplication and division

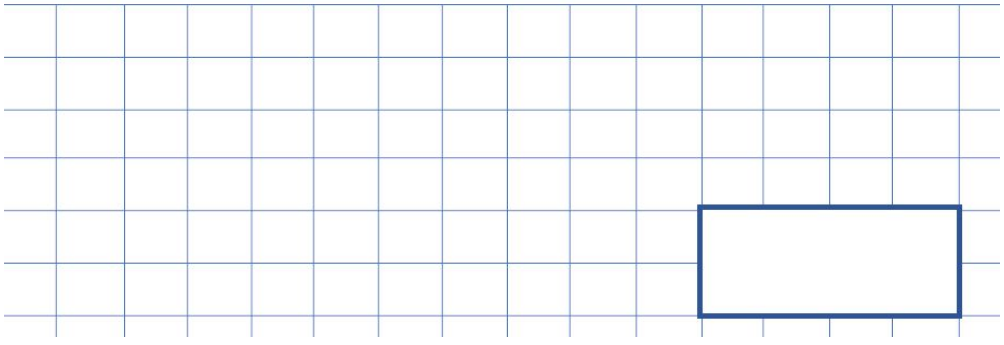
Included in this document are some examples of arithmetic style questions and reasoning style questions (like SATs) involving multiplication and division. This set of questions could be worked on over a couple of days or you may do some of it during one week and some during the next. Once you have finished, you could use a calculator to check your answers. If you make a mistake, look back and try and work out where you went wrong. I've added the calculation policy to help you if needed. You could record your work into your exercise books and send me a photograph of what you did/ a summary of how you got on. I've also added an Nrich document to this file which has a multiplication/division link but is more focussed on problem solving. You could have a go at this once you have finished these activities.

## Arithmetic

134 x 3 =

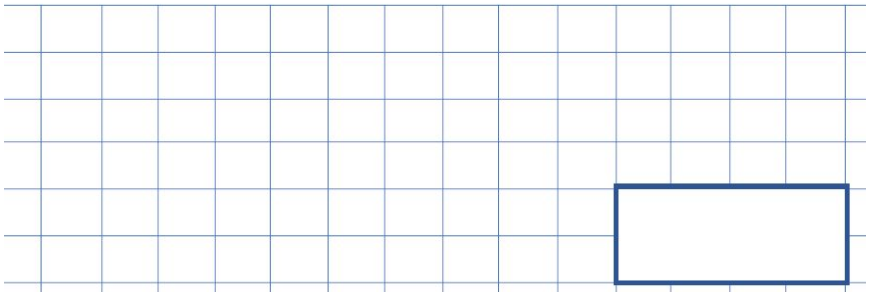


79 ÷ 8 =

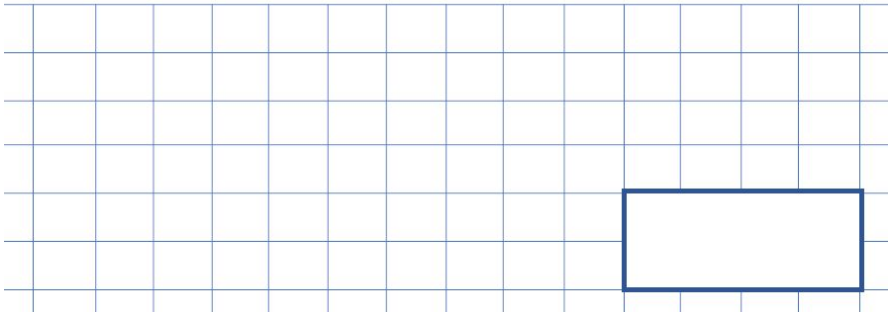


67 x 6 =

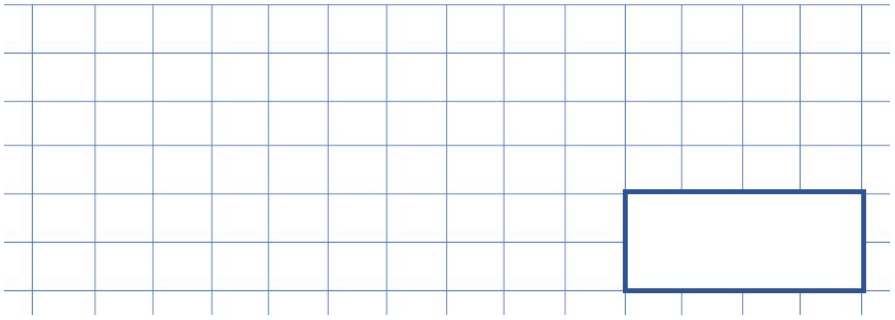
980 ÷ 8 =



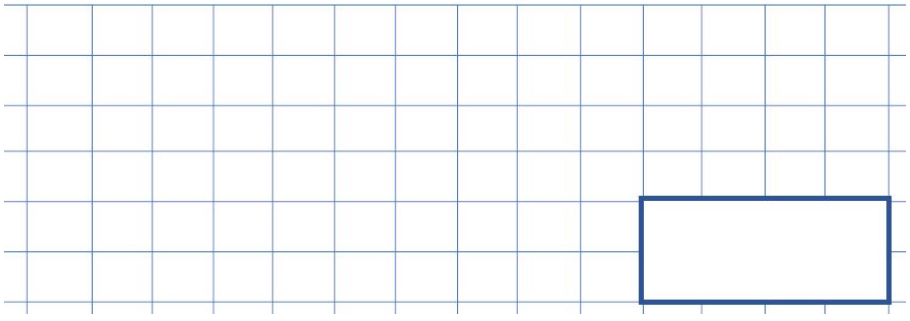
6 x 5 x 8 =



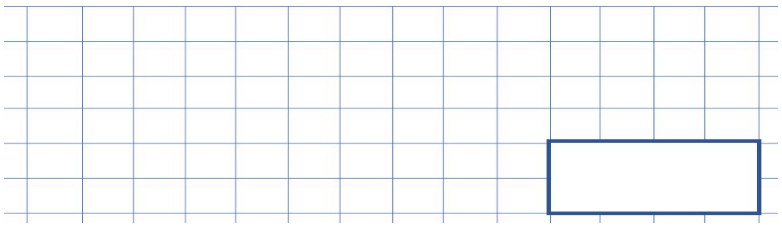
1,800 ÷ 12 =



6,792 ÷ 2 =



$6^2$ =



100 x 200 =

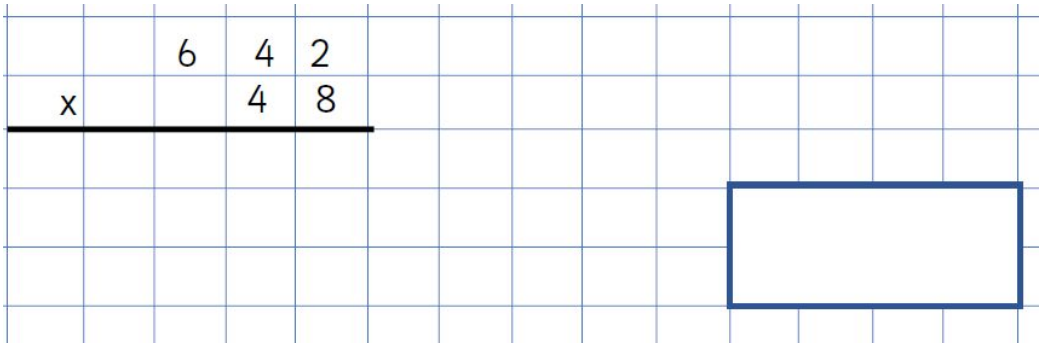
3,485 ÷ 5 =

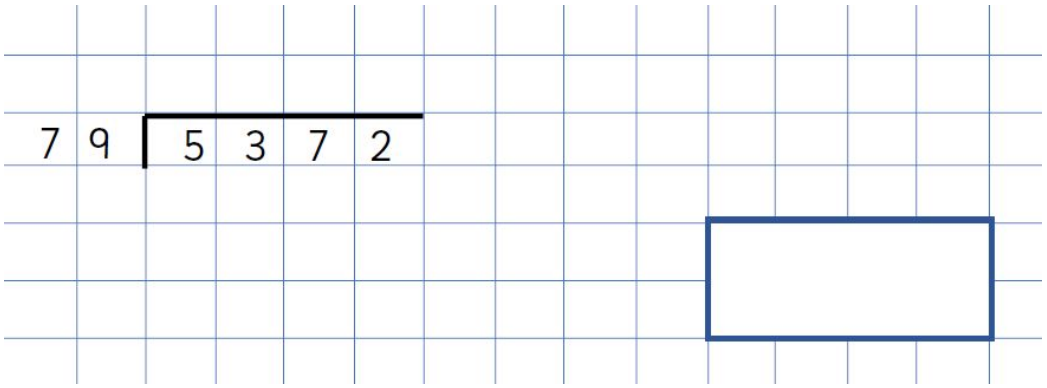
$9^2$ =

$$\begin{array}{r} 64 \\ \times\ 48 \\ \hline \end{array}$$

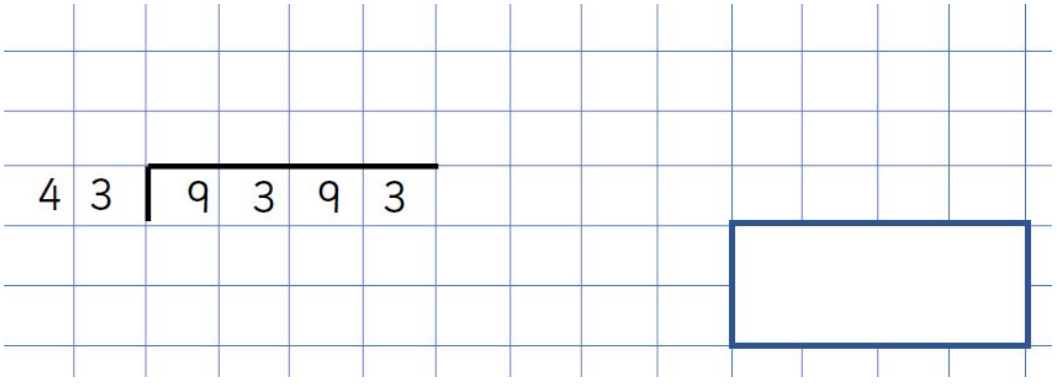
Show your method.

$$16\overline{)1056}$$


6 4 2
x 4 8


7 9 5 3 7 2


7 4 2
x 6 9


4 3 9 3 9 3

## Reasoning

1.

Write the missing number to make this **division** correct.

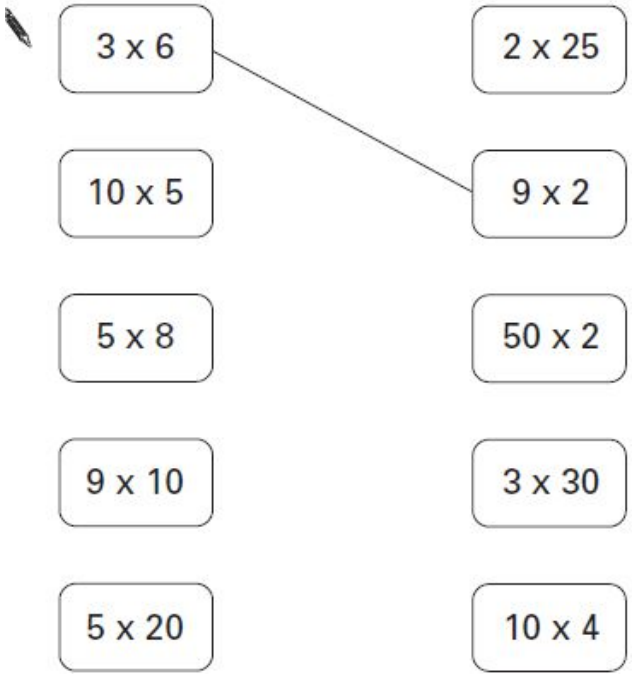
$$75 \div \square = 7.5$$

2.

Each card on the left matches one on the right.

Draw lines to match the cards which are **equal** in value.

One has been done for you.




3.

At a tournament there are 7 players in each team.

There are 112 players altogether.

How many teams is this?

4.

Here are six cards.

| | | |
|---|---|---|
| × 10 | × 100 | × 1000 |
| ÷ 10 | ÷ 100 | ÷ 1000 |

Use a card to complete each calculation.

5.3 ☐ = 0.53

5.3 ☐ = 5300

5.3 ☐ = 0.053

5 and 6.

Write in the missing numbers.

5 × 70 = ☐

4 × ☐ = 200

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Circle two different numbers which **multiply** together to make **1 million**.

10 100 1000 10 000 100 000

7.

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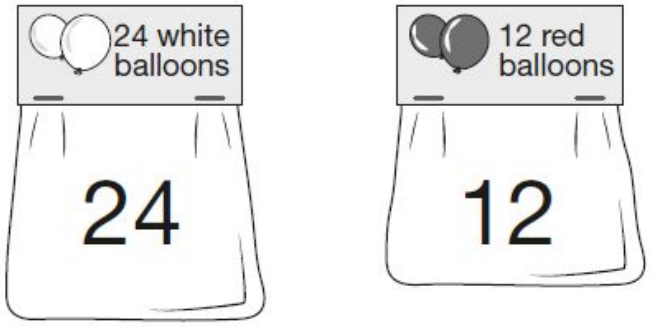
Circle the number that is **10 times** greater than nine hundred and seven.

9,700 907 9,007 970 9,070

8.




Adam buys **6** bags of white balloons.

Chen buys **3** bags of red balloons.

Adam says,

***'I have four times as many balloons as Chen.'***

Explain why Adam is correct.

9.

Chen uses these digit cards.


She makes a 2-digit number and a 1-digit number.

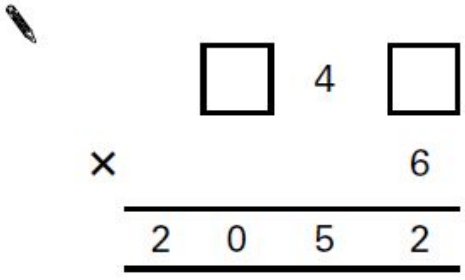
She multiplies them together.

Her answer is a **multiple of 10**

What could Chen's multiplication be?


10.

Write in the missing digits to make this correct.



11.

Write the two missing digits to make this **long multiplication** correct.

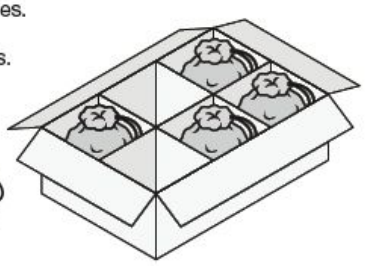
| | | | |
|---|---|---|---|
| | | 4 | □ |
| × | □ | | 6 |
| | 2 | 4 | 6 |
| | 8 | 2 | 0 |
| 1 | 0 | 6 | 6 |

12.

A toy shop orders 11 boxes of marbles.

Each box contains 6 bags of marbles.

Each bag contains 45 marbles.

How many **marbles** does the shop order in total?

13.

Jack chose a number.

He multiplied the number by 7

Then he added 85

His answer was 953

What number did Jack choose?

14.

A machine pours 250 millilitres of juice every 4 seconds.

How many **litres** of juice does the machine pour every **minute**?

litres

15.

The International Space Station orbits the Earth at a height of 250 miles.

What is the height of the International Space Station in **kilometres**?

Use 8 kilometres equals 5 miles.

km

16.

Each bracelet has **53** beads.

She makes **68** bracelets.

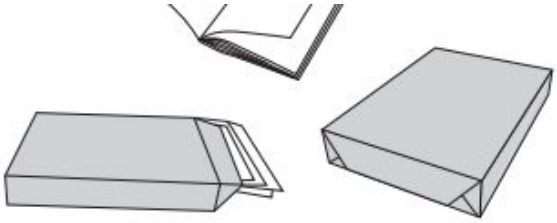
Each necklace has **105** beads.

She makes **34** necklaces.

How many beads does Layla use **altogether**?

beads

17.



Each booklet must have **34** sheets of paper.

He has **2** packets of paper.

There are **500** sheets of paper in each packet.

How many complete booklets can Adam make from **2** packets of paper?

booklets

# Extracts from the calculation policy (if needed)

## Stage 5 (year 5 and 6)

Stage 5 builds on stage 4 by extending the grid method to a range of other possible calculations.

- ThHTU x U (eg 4346 x 8)
- TU x TU (eg 72 x 38) & HTU x TU (eg 372 x 24 - example 1 below)
- U.t x U (eg 4.9 x 3) & U.th x U (eg 6.73 x 7 - example 2 below)

In **example 1** there are two rows in the grid - one for the tens and one for the units.

372 x 24 =

E = 400 x 25 = 10,000

| x | 300 | 70 | 2 |
|---|---|---|---|
| 20 | 6000 | 1400 | 40 |
| 4 | 1200 | 280 | 8 |

A = 8,928

6000
1200
1400
280
40
+ 8
8928
1

6.73 x 7 =

E = 7 x 7 = 49

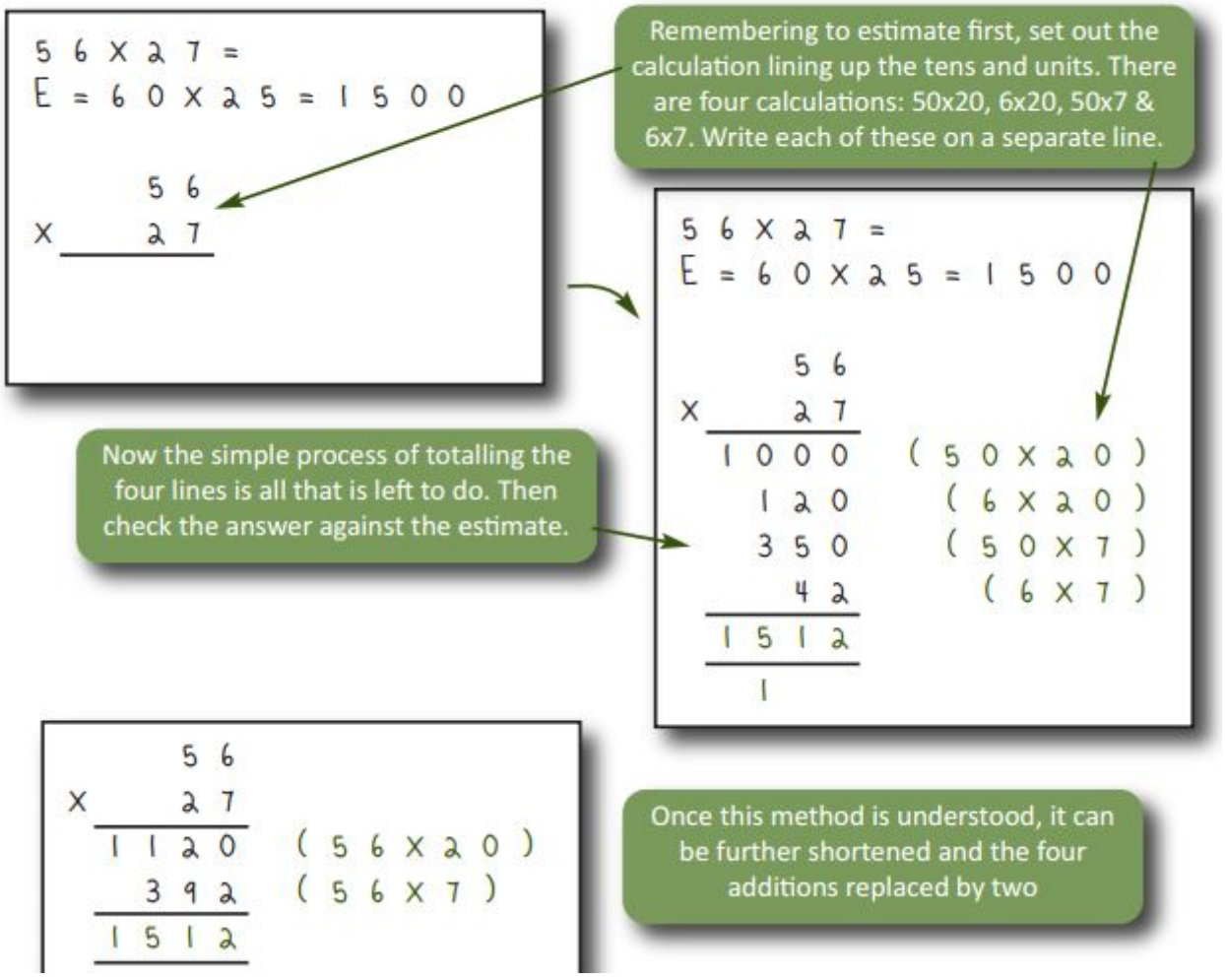
**Example 2** requires a good understanding of decimals.

| x | 6 | 0.7 | 0.03 |
|---|---|---|---|
| 7 | 42 | 4.9 | 0.21 |

A = 47.11

42
4.9
+ 0.21
47.11
1

The final stage for this operation is the standard written method of long multiplication. It is easy to see how this method develops from the grid method as the processes are the same, with each section of the grid written in a column.




Even at this stage, many children prefer the visual nature of the grid method.

A school trip to Wimpole Hall costs £4.63 for each child. 23 children go on the trip. How much does it cost altogether?

E = £5 X 23 = £115

| X | 4 | 0.6 | 0.03 |
|---|---|---|---|
| 20 | 80 | 12 | 0.6 |
| 3 | 12 | 1.8 | 0.09 |

A - £106.49

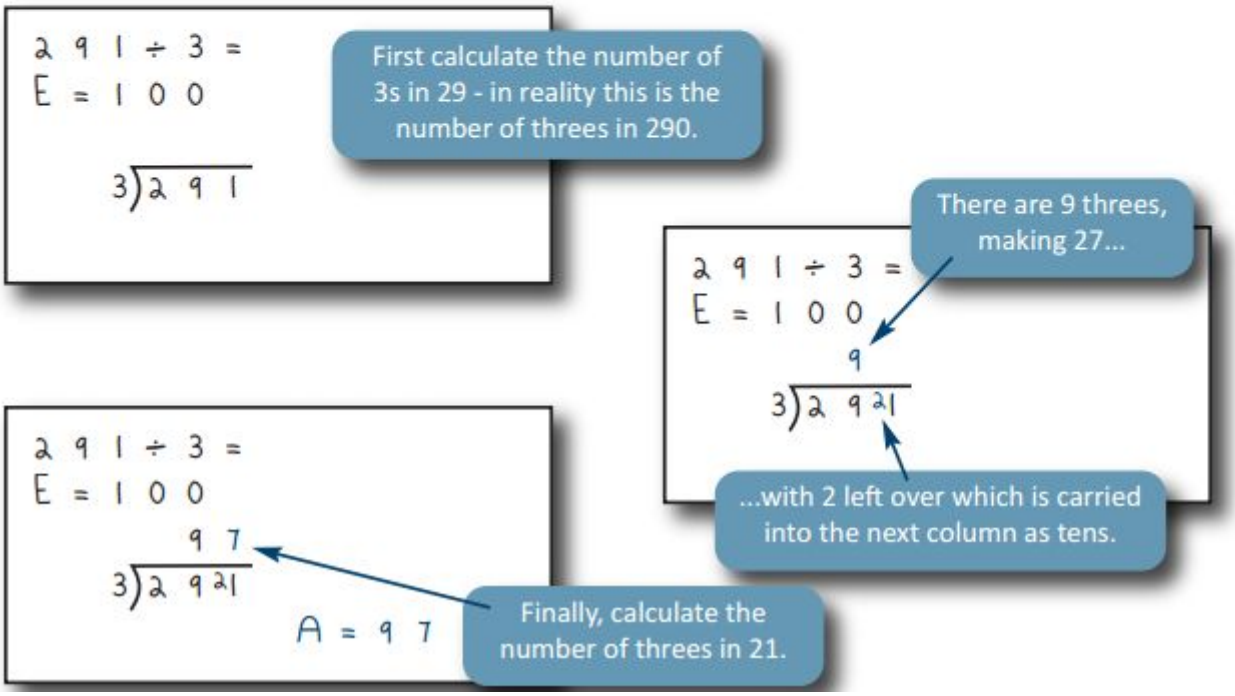
80
12
12
1.8
0.6
+ 0.09
106.49
1

## Stage 5 (Year 5)

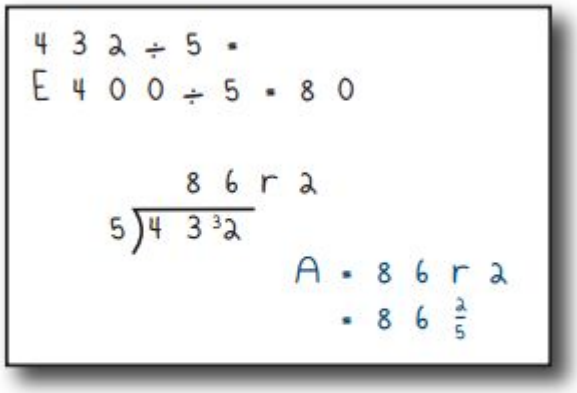
At this stage children will multiply and divide whole numbers and decimals by 10, 100 and 1000, drawing on known multiplication facts.

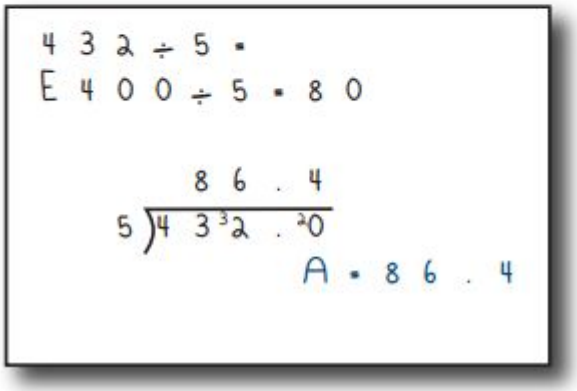
Children will continue to use division on a number line for some questions.

**Short Division:** children will begin to use formal written methods for three-digit (HTU) numbers divided by single-digit (U) numbers.




Children should be able to interpret the remainder as a fraction or decimal, for example:

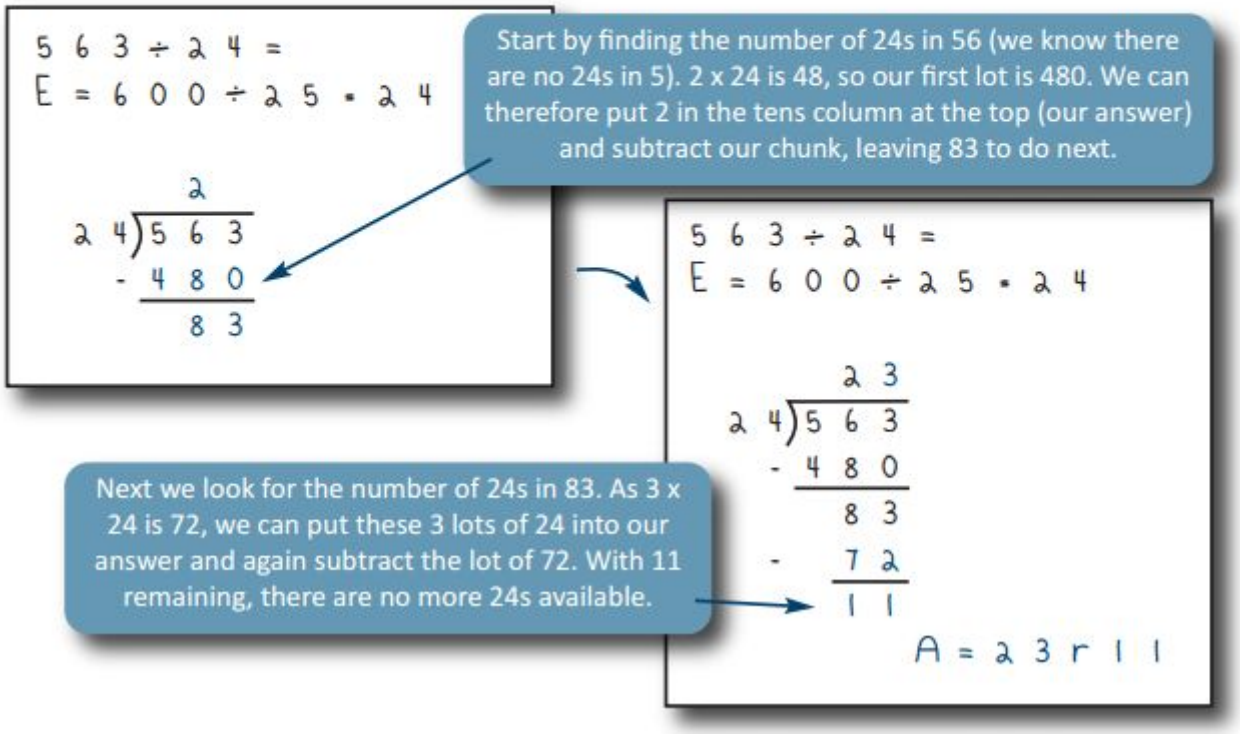


**Stage 6 (Year 6)**

Finally, long division allows us to tackle calculations where we want to divide by a two-digit number.

Children will continue to use division on a number line for some questions.




Children should be able to interpret the remainder as a fraction or decimal, for example: