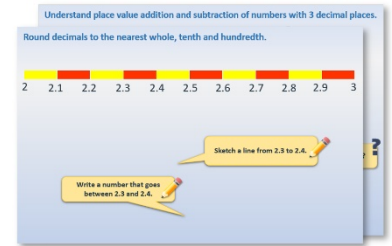


Week 14, Day 3

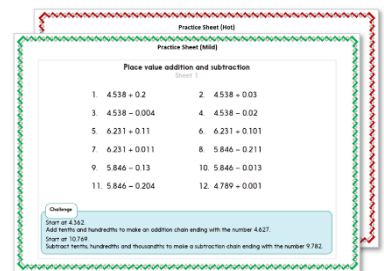
Solving division problems

Each day covers one maths topic. It should take you about 1 hour or just a little more.

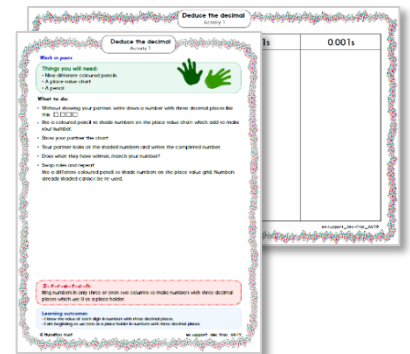
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



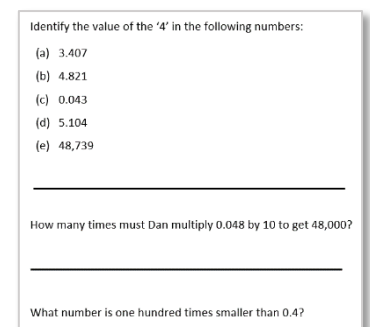
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**



4. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders

Solving division problems.

Let's solve $75 \div 6$ using the 'bus shelter' layout.

We know that 10 6s are 60.
Put 10 in the answer line above 75.
Subtract 60 from 75 leaving 15.

We know that 2 6s are 12.
Add 2 to the answer line.
Subtract 12 from 15 to find the remainder.

$$\begin{array}{r} 10 + 2 \text{ r } 3 \\ 6 \overline{)75} \\ - 60 \\ \hline 15 \\ - 12 \\ \hline 3 \end{array}$$

First,
try 10 lots.

Second,
look to see
how many lots
of 6 we need...

$$75 \div 6 = 12 \text{ r } 3$$

Learning Reminders

Solving division problems.

Jimmy has broken his arm and is doing lots of reading. If he reads 6 pages a day of a book with 75 pages, how many days will it take him to finish reading the book?

We know that $75 \div 6 = 12 \text{ r } 3$.
Now read these 2 problems.

Jimmy will still have three pages left after the 12th day of reading, so the book will take **13 days** to read.

Mr Chidgey's hens have laid 75 eggs. He puts the eggs in boxes of 6.
How many boxes can he completely fill?

He can completely fill **12 boxes**.

In division word problems sometimes we round up and sometimes we round down!

Read back the problem to make sure your answer makes sense.

Practice Sheet Mild

Division with remainders

1. Katya reads 5 pages a day. There are 93 pages in her book. How many days will it take her to read her book?
2. Bill the baker has made 71 buns. How many packs of 4 buns can he fill?
3. $43 \div 3$
4. $51 \div 4$
5. $83 \div 5$
6. $74 \div 6$
7. $56 \div 3$
8. $75 \div 4$
9. $93 \div 6$
10. $112 \div 5$

Challenge

Create a word problem for any one of the other questions.

Practice Sheet Hot

Division with remainders

1. Class 6 need 87 exercise books. They come in packs of 6.
How many packs do they need?
2. Bob the baker has made 95 buns.
How many packs of 4 buns can he fill?
3. $74 \div 3$
4. $98 \div 6$
5. $93 \div 4$
6. $103 \div 8$
7. $117 \div 4$
8. $131 \div 6$
9. $178 \div 5$
10. $182 \div 8$

Challenge

Create **two** word problems for any **one** of the other questions – one problem that requires the answer to be rounded down, and the other to be rounded up.

Practice Sheets Answers

Division with remainders (mild)

1. Katya reads 5 pages a day. There are 93 pages in her book. How many days will it take her to read her book?

$$93 \div 5 = 18 \text{ r}3$$

It will take Katya 19 days to read her book.
On the 19th day she will have 3 pages to read.

2. Bill the baker has made 71 buns. How many packs of 4 buns can he fill?

$$71 \div 4 = 17 \text{ r}3$$

Bill can fill 17 packs and he will have 3 buns spare.

3. $43 \div 3$

$$\frac{10 + 4 = 14 \text{ r}1}{3 \overline{)43}}$$

$$\begin{array}{r} 3 \overline{)43} \\ - 30 \\ \hline 13 \\ - 12 \\ \hline 1 \end{array}$$

4. $51 \div 4$

$$\frac{10 + 2 = 12 \text{ r}3}{4 \overline{)51}}$$

$$\begin{array}{r} 4 \overline{)51} \\ - 40 \\ \hline 11 \\ - 8 \\ \hline 3 \end{array}$$

5. $83 \div 5$

$$\frac{10 + 6 = 16 \text{ r}3}{5 \overline{)83}}$$

$$\begin{array}{r} 5 \overline{)83} \\ - 50 \\ \hline 33 \\ - 30 \\ \hline 3 \end{array}$$

6. $74 \div 6$

$$\frac{10 + 2 = 12 \text{ r}2}{6 \overline{)74}}$$

$$\begin{array}{r} 6 \overline{)74} \\ - 60 \\ \hline 14 \\ - 12 \\ \hline 2 \end{array}$$

7. $56 \div 3$

$$\frac{10 + 8 = 18 \text{ r}2}{3 \overline{)56}}$$

$$\begin{array}{r} 3 \overline{)56} \\ - 30 \\ \hline 26 \\ - 24 \\ \hline 2 \end{array}$$

8. $75 \div 4$

$$\frac{10 + 8 = 18 \text{ r}3}{4 \overline{)75}}$$

$$\begin{array}{r} 4 \overline{)75} \\ - 40 \\ \hline 35 \\ - 32 \\ \hline 3 \end{array}$$

9. $93 \div 6$

$$\frac{10 + 5 = 15 \text{ r}3}{6 \overline{)93}}$$

$$\begin{array}{r} 6 \overline{)93} \\ - 60 \\ \hline 33 \\ - 30 \\ \hline 3 \end{array}$$

10. $112 \div 5$

$$\frac{20 + 2 = 22 \text{ r}2}{5 \overline{)112}}$$

$$\begin{array}{r} 5 \overline{)112} \\ - 100 \\ \hline 12 \\ - 10 \\ \hline 2 \end{array}$$

Practice Sheets Answers

Division with remainders (hot)

1. Class 6 needs 87 exercise books. They come in packs of 6. How many packs do they need?

$87 \div 6 = 14 \text{ r}3$ Class 6 need 15 packs of exercise books.

2. Bob the baker has made 95 buns. How many packs of 4 buns can he fill?

$95 \div 4 = 23 \text{ r}3$
Bob can fill 23 packs and he will have 3 buns spare.

3. $74 \div 3$

$$\begin{array}{r} 20 + 4 = 24 \text{ r}2 \\ 3 \overline{)74} \\ - 60 \\ \hline 14 \\ - 12 \\ \hline 2 \end{array}$$

4. $98 \div 6$

$$\begin{array}{r} 10 + 5 + 1 = 16 \text{ r}2 \\ 6 \overline{)98} \\ - 60 \\ \hline 38 \\ - 30 \\ \hline 8 \\ 6 \\ \hline 2 \end{array}$$

5. $93 \div 4$

$$\begin{array}{r} 20 + 3 = 23 \text{ r}1 \\ 4 \overline{)93} \\ - 80 \\ \hline 13 \\ - 12 \\ \hline 1 \end{array}$$

6. $103 \div 8$

$$\begin{array}{r} 10 + 2 = 12 \text{ r}7 \\ 8 \overline{)103} \\ - 80 \\ \hline 23 \\ - 16 \\ \hline 7 \end{array}$$

7. $117 \div 4$

$$\begin{array}{r} 20 + 9 = 29 \text{ r}1 \\ 4 \overline{)117} \\ - 80 \\ \hline 37 \\ - 36 \\ \hline 1 \end{array}$$

8. $131 \div 6$

$$\begin{array}{r} 20 + 1 = 21 \text{ r}5 \\ 6 \overline{)131} \\ - 120 \\ \hline 11 \\ - 6 \\ \hline 5 \end{array}$$

9. $178 \div 5$

$$\begin{array}{r} 30 + 5 = 35 \text{ r}3 \\ 5 \overline{)178} \\ - 150 \\ \hline 28 \\ - 25 \\ \hline 3 \end{array}$$

10. $182 \div 8$

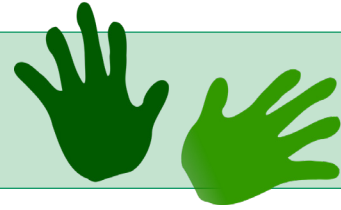
$$\begin{array}{r} 20 + 2 = 22 \text{ r}6 \\ 8 \overline{)182} \\ - 160 \\ \hline 22 \\ - 16 \\ \hline 6 \end{array}$$

A Bit Stuck? Remainders rule

Work in pairs

Things you will need:

- A pencil
- 0 to 100 beaded lines (optional)



What to do:

- Choose divisions to calculate.
Correct divisions score 1 point, but if there is a remainder, you score the remainder as a bonus!
So, if there is a remainder of 3, you score an extra 3 points.
- Remember to draw a big jump of 10x the number you are dividing by.
Then look to see how much is left.

$$\begin{array}{ccccc} 49 \div 3 & 65 \div 5 & 50 \div 4 & 39 \div 3 & 77 \div 5 \\ 48 \div 4 & 69 \div 5 & 43 \div 3 & & 55 \div 4 \end{array}$$

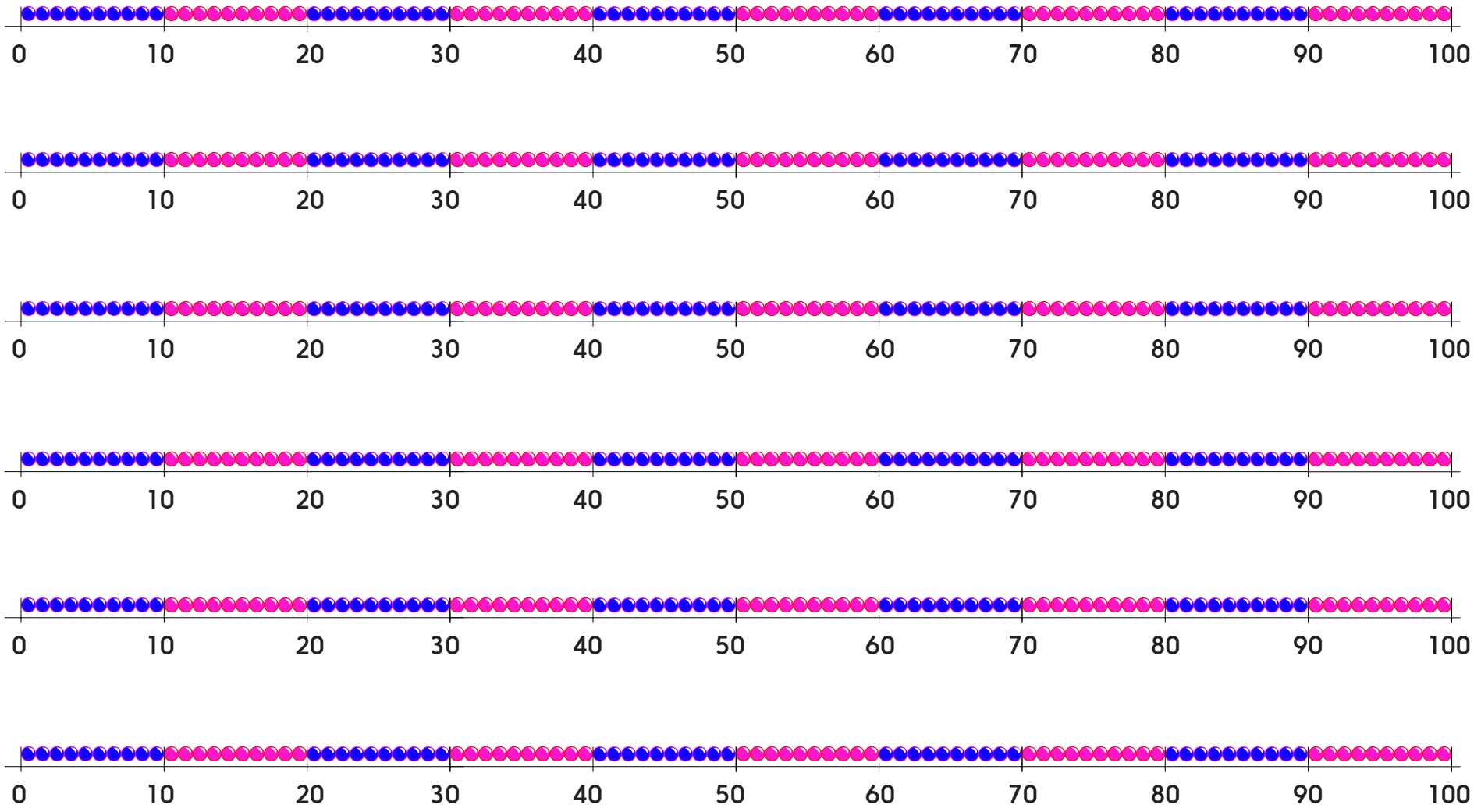
S-t-r-e-t-c-h:

Write two other divisions by 5 which will leave remainders.

Learning outcomes:

- I can use chunking on a beaded line to divide numbers just beyond the times tables (with remainders).
- I am beginning to draft my own number line jottings when using chunking (with remainders).

A Bit Stuck? Remainders rule



Check your understanding

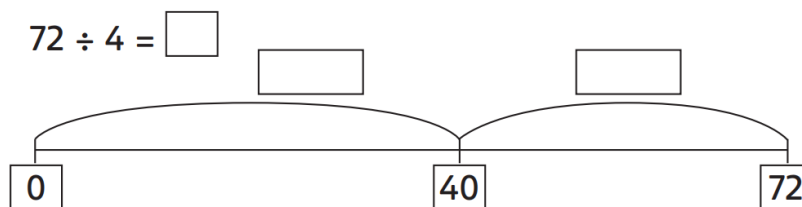
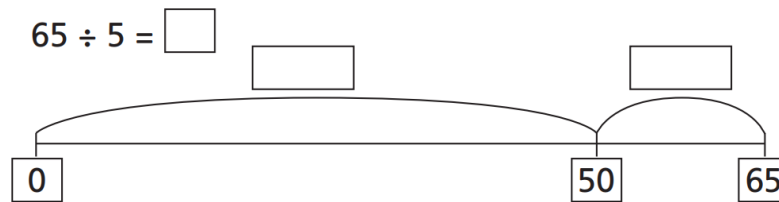
Questions

Write the missing number in each calculation.

$$26 \div \square = 3 \text{ remainder } 5$$

$$55 \div \square = 18 \text{ remainder } 1$$

Fill in the missing numbers on these number lines:



Charlie has 95 £1 coins. She makes six equal piles of coins as high as she can. Does she have any left over? If so, how many?

Taking a taxi home from the cinema, 5 friends equally shared the cost of £12. How much did each passenger pay?

True or False?

- An odd number divided by an odd number always gives a whole number odd answer.
- An even number divided by an odd number always leaves a remainder.

Check your understanding

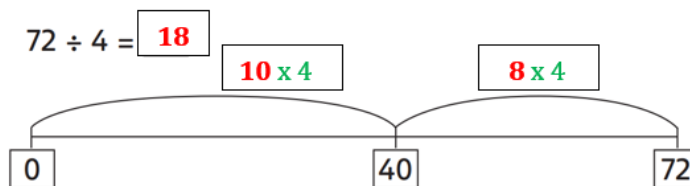
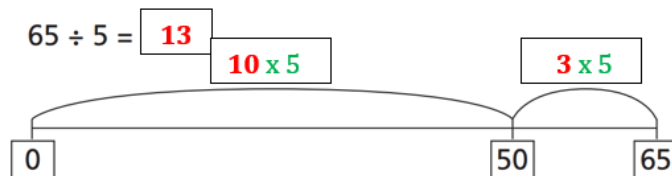
Answers

Write the missing number in each calculation.

$$26 \div 7 = 3 \text{ remainder } 5$$

$$55 \div 3 = 18 \text{ remainder } 1$$

Fill in the missing numbers on these number lines:



Charlie has 95 £1 coins. She makes six equal piles of coins as high as she can. Does she have any left over? If so, how many? **15 piles with 5 left over.**

Taking a taxi home from the cinema, 5 friends equally shared the cost of £12. How much did each passenger pay? **£2.40. NB 2r2 is the numerical answer to $12 \div 5$ but does not answer the problem.**

True or False?

- An odd number divided by an odd number always gives a whole number odd answer. **False. This is true if applied to tables facts (and extensions of them), e.g. $21 \div 7 = 3$, $51 \div 3 = 17$, but not to all such divisions, e.g. $21 \div 5 = 4r1$, $29 \div 3 = 9r2$.**

- An even number divided by an odd number always leaves a remainder. **False, e.g. $6 \div 3 = 2$, $20 \div 5 = 4$.**