YR 3 WRITTEN CALCULATION DIVISION WORKBOOK ANSWERS

Step 5: Three-digit ÷ one-digit carrying once

Larger numbers can be divided in the same way. Remember to work from left to right and to carry a digit across where you need to.

A short way to write 'remainder' is 'r'. So, in the calculation below, instead of writing 'remainder 2', we can write 'r2'.

	H	T	U
3)	5	7	6

What to do

576 ÷ 3 = ?

	H	T	U
	1		
3)	5	²7	6

1 Start with the hundreds digit of the large number. Here it is 5. Divide this digit by the divisor, 3. Ask: *How many 3s in 5?* 5 ÷ 3 = 1 r2. So write the 1 above the line in the hundreds column and carry the 2 next to the tens digit of the number.

	H	T	U
	1	9	
3)	5	²7	6

2 Then look at the tens. Instead of 7 tens, there are now 27 tens. Divide 27 by the divisor, 3. Ask: *How many 3s in 27?* 27 ÷ 3 = 9. Write the answer 9 above the line in the tens column.

	H	T	U
	1	9	2
3)	5	²7	6

3 Now look at the units digit of the number. Here it is 6. Divide this digit by the divisor, 3. Ask: *How many 3s in 6?* Write the answer 2 above the line in the units column to complete the answer.

576 ÷ 3 = 192

Now you try

1 | | H | T | U |
|---|---|---|---|
| 2) | 7 | ¹4 | 8 |
| | | 3 | 7 | 4 |

2 | | H | T | U |
|---|---|---|---|
| 3) | 8 | ²4 | 6 |
| | | 2 | 8 | 2 |

3 | | H | T | U |
|---|---|---|---|
| 4) | 6 | ²4 | 4 |
| | | 1 | 6 | 1 |

4 | | H | T | U |
|---|---|---|---|
| 4) | 7 | ³6 | 8 |
| | | 1 | 9 | 2 |

5 | | H | T | U |
|---|---|---|---|
| 3) | 5 | ²1 | 9 |
| | | 1 | 7 | 3 |

6 | | H | T | U |
|---|---|---|---|
| 5) | 8 | ³5 | 5 |
| | | 1 | 7 | 1 |

More practice

Set out these questions yourself to answer them.

7 426 ÷ 3 = ?

	H	T	U
3)	4	¹2	6
		1	4	2

8 726 ÷ 6 = ?

	H	T	U
6)	7	¹2	6
		1	2	1

For these questions remember that zero divided by a number is zero, for example 0 ÷ 3 = 0.

9 | | H | T | U |
|---|---|---|---|
| 3) | 8 | ²1 | 0 |
| | | 2 | 7 | 0 |

10 | | H | T | U |
|---|---|---|---|
| 8) | 9 | ¹6 | 0 |
| | | 1 | 2 | 0 |

Problem solving

11 546 ÷ 3 has the same answer as 364 ÷ 2. True or false?

	H	T	U
3)	5	²4	6
		1	8	2

	H	T	U
2)	3	¹6	4
		1	8	2

true

12 655 ÷ 5 has the same answer as 786 ÷ 6. True or false?

	H	T	U
5)	6	¹5	5
		1	3	1

	H	T	U
6)	7	¹8	6
		1	3	1

true

13 910 ÷ 7 has the same answer as 520 ÷ 4. True or false?

	H	T	U
7)	9	²1	0
		1	3	0

	H	T	U
4)	5	¹2	0
		1	3	0

true

14 Mrs Pot buys 489 teabags. She uses three teabags each day. How many days will the teabags last?

	H	T	U
3)	4	¹8	9
		1	6	3

163 days

How did I find Step 5? ☐ Easy ☐ OK ☐ Difficult

Check-up test 1 Two- and three-digit ÷ one-digit, with carrying

Step 1

1

$$2\overline{)46} = 23$$

2

$$3\overline{)93} = 31$$

3 84 ÷ 4 = ?

$$4\overline{)84} = 21$$

Step 2

4

$$4\overline{)844} = 211$$

5 963 ÷ 3 = ?

$$3\overline{)963} = 321$$

Step 3

6

$$4\overline{)96} = 24$$

7 45 ÷ 3 = ?

$$3\overline{)45} = 15$$

Step 4

8

$$4\overline{)732} = 18$$

9 85 ÷ 5 = ? 17

$$5\overline{)85} = 17$$

Step 5

10

$$4\overline{)648} = 162$$

11 655 ÷ 5 = ? 131

$$5\overline{)655} = 131$$

Steps 1 to 5 mixed

Use the grid below for working.

12 Share 96p between three people. 32p

13 Divide 848 sweets between four people. 212

14 72 plants are arranged in groups of three. How many groups are there? 24

15 How many horses can you shoe with 64 horseshoes? 16

16 Divide 910 by 7. 130

17 How many cars can have four new tyres if there are 768 tyres? 192

12) $3\overline{)96} = 32$

13) $4\overline{)848} = 212$

14) $3\overline{)72} = 24$

15) $4\overline{)64} = 16$

16) $7\overline{)910} = 130$

17) $4\overline{)768} = 192$

Total test score

Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
%	6	12	18	24	29	35	41	47	53	59	65	71	76	82	88	94	100

17

Step 6: Three-digit ÷ one-digit first digit smaller than the divisor

In this step the first digit of the larger number is smaller than the divisor. Here notice that the first digit, 2, is less than the divisor 3.

	H	T	U
3)	2	7	6

What to do

276 ÷ 3 = ?

1 Start in the same way with the hundreds digit, 2. Divide it by the divisor. Ask: *How many 3s in 2?* As there are **no** 3s in 2, write 0 above the line in the hundreds column and carry the 2. Write the 2 next to the tens digit, 7. Later, you won't need to write the zero – you can just leave a space there.

	H	T	U
	0		
3)	2	²7	6

2 Then continue as normal with the tens. Instead of 7 we now have 27. Ask: *How many 3s in 27?* 27 ÷ 3 = 9. Write the 9 in the tens column.

	H	T	U
	0	9	
3)	2	²7	6

3 Then divide the units digit by the divisor, 3. Ask: *How many 3s in 6?* Write the 2 in the units column to complete the answer.

	H	T	U
	0	9	2
3)	2	²7	6

276 ÷ 3 = 92

Now you try

1

	H	T	U
	0	7	3
2)	1	¹4	6

2

	H	T	U
	0	7	1
5)	3	³5	5

3

	H	T	U
	0	8	2
4)	3	³2	8

4

	H	T	U
	0	3	1
9)	2	²7	9

5

	H	T	U
	0	9	1
6)	5	⁵4	6

6

	H	T	U
	0	8	3
3)	2	²4	9

More practice

Set out these questions yourself to answer them.

7 426 ÷ 6 = ?

	H	T	U
	0	7	1
6)	4	¹2	6

8 288 ÷ 4 = ?

	H	T	U
	0	7	2
4)	2	²8	8

Problem solving

9 Look at this calculation. Can you see what error has been made?

	H	T	U
	0	1	1
5)	4	5	5

Error: The 4 was not carried into the tens column.

Work out the correct answer.

	H	T	U
	0	9	1
5)	4	⁴5	5

91

10 Look at this calculation. Can you see what error has been made?

	H	T	U
	2	2	1
4)	2	8	4

Error: For the first digit the question should be 'How many 4s in 2?' not 'How many 2s in 4?'

Work out the correct answer.

	H	T	U
	0	7	1
4)	2	²8	4

71

11 There are some cows in a field. If there are 368 legs, how many cows are there?

	H	T	U
	0	9	2
4)	3	³6	8

92

How did I find Step 6? ☐ Easy ☐ OK ☐ Difficult

Step 7: Three-digit ÷ one-digit carrying tens

The questions in this step involve carrying once, but this time the carrying is from the tens to the units.

What to do

876 ÷ 4 = ?

1 Divide the hundreds digit by the divisor, 4. Ask: *How many 4s in 8?* Write the 2 above the line in the hundreds column.

2 Next look at the tens. Divide by the divisor, 4. Ask: *How many 4s in 7?* 7 ÷ 4 = 1 r3. Write the 1 above the line in the tens column and carry the 3 to the units column.

3 Now look at the units digit. Instead of 6 we now have 36. Divide by the divisor, 4. Ask: *How many 4s in 36?* 36 ÷ 4 = 9. Write the 9 in the units column to complete the answer.

876 ÷ 4 = 219

Now you try

1 $\begin{array}{r} 327 \\ 3\overline{)\,9\,8\,{}^{2}1} \end{array}$

2 $\begin{array}{r} 217 \\ 4\overline{)\,8\,6\,{}^{2}8} \end{array}$

3 $\begin{array}{r} 117 \\ 5\overline{)\,5\,8\,{}^{3}5} \end{array}$

4 $\begin{array}{r} 113 \\ 6\overline{)\,6\,7\,{}^{1}8} \end{array}$

5 $\begin{array}{r} 124 \\ 4\overline{)\,4\,9\,{}^{1}6} \end{array}$

6 $\begin{array}{r} 225 \\ 3\overline{)\,6\,7\,{}^{1}5} \end{array}$

7 $\begin{array}{r} 119 \\ 3\overline{)\,3\,5\,{}^{2}7} \end{array}$

8 $\begin{array}{r} 127 \\ 3\overline{)\,3\,8\,{}^{2}1} \end{array}$

More practice

Set out these questions yourself to answer them, including drawing the horizontal and vertical lines.

9 464 ÷ 4 = ? 116

$\begin{array}{r} 116 \\ 4\overline{)\,4\,6\,{}^{2}4} \end{array}$

10 674 ÷ 2 = ? 337

$\begin{array}{r} 337 \\ 2\overline{)\,6\,7\,{}^{1}4} \end{array}$

Problem solving

11 Four people win £872 on the lottery. They share it equally. How much does each person get?

$\begin{array}{r} 218 \\ 4\overline{)\,8\,7\,{}^{3}2} \end{array}$ £218

12 At the school there are 678 children. If all the children sit in groups of three, how many groups are there?

$\begin{array}{r} 226 \\ 3\overline{)\,6\,7\,{}^{1}8} \end{array}$ 226

13 A scientist has 678ml of liquid in a container. He pours exactly half into another container. How much liquid is in each container?

$\begin{array}{r} 339 \\ 2\overline{)\,6\,7\,{}^{1}8} \end{array}$ 339ml

14 Amit's father drives the same distance to work every day. If he drives 590km in five days, how far does he drive each day?

$\begin{array}{r} 118 \\ 5\overline{)\,5\,9\,{}^{4}0} \end{array}$ 118km

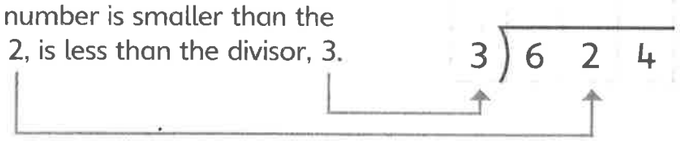
15 A factory makes four-legged tables. How many tables can be made with 860 legs?

$\begin{array}{r} 215 \\ 4\overline{)\,8\,6\,{}^{2}0} \end{array}$ 215

How did I find Step 7? ☐ Easy ☐ OK ☐ Difficult

Step 8: Three-digit ÷ one-digit second digit smaller than the divisor

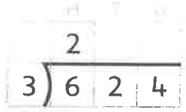
In this step the second digit of the larger number is smaller than the divisor. Here notice that the second digit, 2, is less than the divisor, 3.



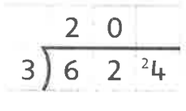
What to do

624 ÷ 3 = ?

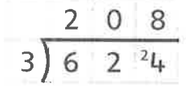
1 Divide the hundreds digit by the divisor, 3. Ask: *How many 3s in 6?* Write the 2 above the line in the hundreds column.



2 Then look at the tens digit, 2. Ask: *How many 3s in 2?* As there are **no** 3s in 2, write 0 above the line in the tens column and write the carried 2 next to the units digit.

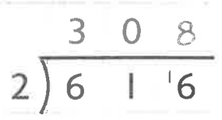


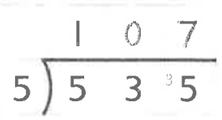
3 Then continue as normal with the units. Instead of 4 we now have 24. Ask: *How many 3s in 24?* 24 ÷ 3 = 8. Write the 8 above the line to complete the answer.



624 ÷ 3 = 208

Now you try

1 

2 

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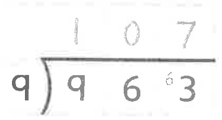
4 

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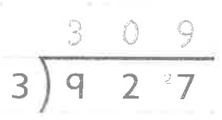
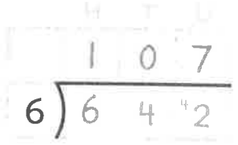
6 

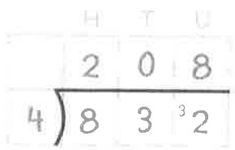
More practice

Set out these questions yourself to answer them.

7 642 ÷ 6 = ?

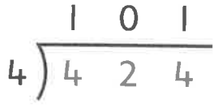


8 832 ÷ 4 = ?



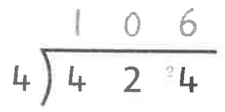
Problem solving

9 Look at this calculation. Can you see what error has been made?



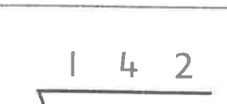
Error: The 2 was not carried into the units column.

What is the correct answer?



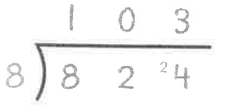
106

10 Look at this calculation. Can you see what error has been made?



Error: For the second digit the question should be 'How many 8s in 2?' not 'How many 2s in 8?'

What is the correct answer?



103

11 Which of these is the answer to 749 divided by 7?

17 11 101 107 170 190

107

How did I find Step 8? ☐ Easy ☐ OK ☐ Difficult

Step 9: Four-digit ÷ one-digit carrying once, any position

The questions in this step involve dividing four-digit numbers and carrying once, but you must decide when to carry. Also watch out for when a digit is smaller than the divisor, as you did in Step 8.

	Th	H	T	U
3)	9	2	4	6

What to do

9246 ÷ 3 = ?

1 Divide the thousands digit by the divisor. Ask: *How many 3s in 9?* Write the answer in the thousands column.

	Th	H	T	U
	3			
3)	9	2	4	6

2 Divide the hundreds digit by the divisor. Ask: *How many 3s in 2?* As there are **no** 3s in 2, write 0 above it and write the carried 2 next to the tens digit.

	Th	H	T	U
	3	0		
3)	9	2	$^{2}4$	6

3 Then look at the tens. Instead of 4 we now have 24. Ask: *How many 3s in 24?* 24 ÷ 3 = 8. Write the 8 above the line.

	Th	H	T	U
	3	0	8	
3)	9	2	$^{2}4$	6

4 Finally divide the units digit by the divisor. 6 ÷ 3 = 2. Write the 2 above the line to complete the answer.

	Th	H	T	U
	3	0	8	2
3)	9	2	$^{2}4$	6

Now you try

1

	2	1	1	4
4)	8	4	$^{1}5$	6

2

	1	6	1	0
5)	8	$^{3}0$	5	0

3

	2	6	2	3
3)	7	$^{1}8$	6	9

4

	1	2	3	2
4)	4	9	$^{1}2$	8

5

	0	8	0	1
6)	4	$^{4}8$	0	6

6

	1	0	7	1
5)	5	3	$^{3}5$	5

More practice

7

	3	4	2	8
2)	6	8	5	$^{1}6$

8

	1	0	1	4
7)	7	0	9	$^{2}8$

Set out these questions yourself to answer them.

9 5769 ÷ 3 = ?

	Th	H	T	U
	1	9	2	3
3)	5	$^{2}7$	6	9

10 8324 ÷ 4 = ?

	Th	H	T	U
	2	0	8	1
4)	8	3	$^{3}2$	4

Problem solving

11 How many weeks are 7735 days?

	1	1	0	5
7)	7	7	3	$^{3}5$

1105 weeks

12 James has three times as much money as Paul has. If James has £6429, how much does Paul have?

	2	1	4	3
3)	6	4	$^{1}2$	9

£2143

13 Mrs Smith is four times as tall as her baby daughter. If Mrs Smith is 1684mm tall, how tall is her daughter?

	0	4	2	1
4)	1	$^{1}6$	8	4

421mm

14 A factory puts cereal bars into packs of six. How many packs can be made with 6306 bars?

	1	0	5	1
6)	6	3	$^{3}0$	6

1051

How did I find Step 9? ☐ Easy ☐ OK ☐ Difficult

Check-up test 2 Three- and four-digit ÷ one-digit, carrying once

Step 6

1

$$3\overline{)243} = 081$$

2 426 ÷ 6 = ?

$$6\overline{)426} = 071$$

Step 7

3

$$6\overline{)678} = 113$$

4 678 ÷ 3 = ?

$$3\overline{)678} = 226$$

Step 8

5

$$4\overline{)828} = 207$$

6 927 ÷ 3 = ? 309

$$3\overline{)927} = 309$$

Step 9

7

$$3\overline{)5769} = 1923$$

8 8324 ÷ 4 = ? 2081

$$4\overline{)8324} = 2081$$

Steps 6 to 9 mixed

Use the grid below for working.

9 Share 216g of flour equally into three bowls. How much flour is in each bowl? 72g

10 Three car parks can each hold the same number of cars. They can take 981 cars altogether. How many cars can park in each car park? 327

11 Four people win £876 at the bingo. They share it equally. How much does each person get? £219

12 Divide 642 by 6. 107

13 How many weeks is 7427 days? 1061 weeks

14 Jay has three times as much money saved as Sam has. If Jay has £4539, how much does Sam have? £1513

9) $3\overline{)216} = 072$

10) $3\overline{)981} = 327$

11) $4\overline{)876} = 219$

12) $6\overline{)642} = 107$

13) $7\overline{)7427} = 1061$

14) $3\overline{)4539} = 1513$

Total test score

Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14
%	7	14	21	29	36	43	50	57	64	71	79	86	93	100

/14

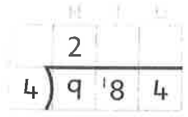
Step 10: Three-digit ÷ one-digit carrying twice

Now you know how to carry once, you can carry twice!

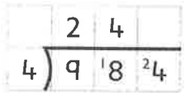
What to do

984 ÷ 4 = ?

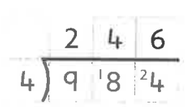
1 Divide the hundreds digit by the divisor, 4. Ask: *How many 4s in 9?* 9 ÷ 4 = 2 r1. So write the 2 above the line in the hundreds column and carry the 1 next to the tens digit of the number.



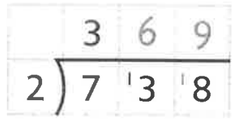
2 Then look at the tens. Instead of 8 we now have 18. Divide by the divisor, 4. Ask: *How many 4s in 18?* 18 ÷ 4 = 4 r2. Write the 4 above the line in the tens column and carry the 2 next to the units digit.



3 Now look at the units digit. Instead of 4 we now have 24. Divide this by the divisor, 4. Ask: *How many 4s in 24?* Write the answer 6 in the units column.



Now you try

1


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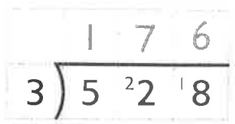

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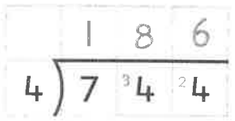

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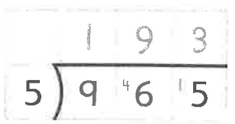

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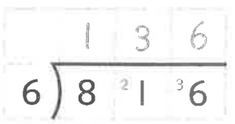

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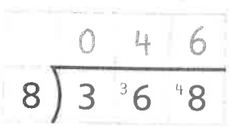

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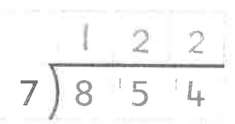

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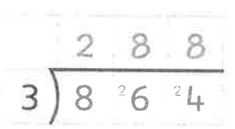
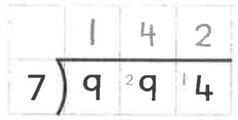


More practice

9


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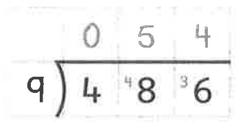
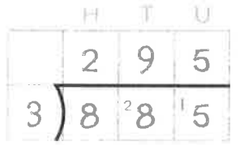
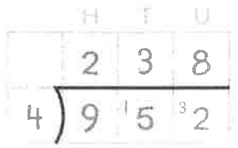


Set out these questions yourself to answer them.

11 885 ÷ 3 = ?

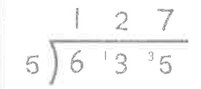


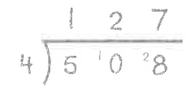
12 952 ÷ 4 = ?



Problem solving

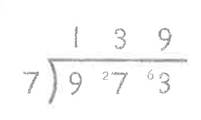
13 635 ÷ 5 has the same answer as 508 ÷ 4. True or false?

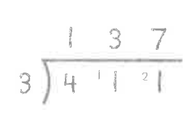




true

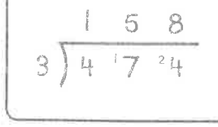
14 973 ÷ 7 has the same answer as 411 ÷ 3. True or false?





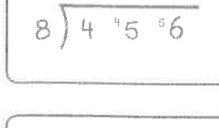
false

15 A plank of wood is 474cm long. It is cut into three equal lengths. How long is each length?



158cm

16 What is 456 shared equally between 8?



57

17 Divide 888 by 6.

148

How did I find Step 10? ☐ Easy ☐ OK ☐ Difficult

Step 11: Four-digit ÷ one-digit carrying two or three times

The questions here involve dividing four-digit numbers and carrying two or even three times, but you must decide when to carry.

What to do

8736 ÷ 6 = ?

1 Divide the thousands digit by the divisor. Ask: *How many 6s in 8?* 8 ÷ 6 = 1 r2. Write the 1 above the line in the thousands column and carry the 2 to the hundreds column.

2 Now look at the hundreds. Instead of 7 we now have 27. Ask: *How many 6s in 27?* 27 ÷ 6 = 4 r3. Write the 4 in the hundreds column and carry the 3 next to the tens digit.

3 Next look at the tens. Instead of 3 we now have 33. Ask: *How many 6s in 33?* 33 ÷ 6 = 5 r3. Write the 5 above and carry the 3.

4 Then look at the units. Instead of 6 we now have 36. Divide 36 by 6. 36 ÷ 6 = 6. Write the 6 above to complete the answer.

Now you try

1 $\begin{array}{r} 1864 \\ 4\overline{)7^{3}4^{2}5^{1}6} \end{array}$

2 $\begin{array}{r} 1814 \\ 5\overline{)9^{4}0^{2}7^{2}0} \end{array}$

3 $\begin{array}{r} 0981 \\ 8\overline{)7^{7}8^{6}4^{4}8} \end{array}$

4 $\begin{array}{r} 1649 \\ 3\overline{)4^{1}9^{1}4^{2}7} \end{array}$

5 $\begin{array}{r} 1318 \\ 6\overline{)7^{1}9^{1}0^{4}8} \end{array}$

6 $\begin{array}{r} 2089 \\ 4\overline{)8\ 3^{3}5^{3}6} \end{array}$

More practice

7 $\begin{array}{r} 3478 \\ 2\overline{)6\ 9^{1}5^{1}6} \end{array}$

8 $\begin{array}{r} 1299 \\ 7\overline{)9^{2}0^{6}9^{6}3} \end{array}$

Set out these questions yourself to answer them.

9 8643 ÷ 3 = ?

$\begin{array}{r} 2881 \\ 3\overline{)8^{2}6^{2}4\ 3} \end{array}$

10 7072 ÷ 4 = ?

$\begin{array}{r} 1768 \\ 4\overline{)7^{3}0^{2}7^{3}2} \end{array}$

Problem solving

11 There are three feet in a yard. How many yards is 5280 feet?

$\begin{array}{r} 1760 \\ 3\overline{)5^{2}2^{1}8\ 0} \end{array}$ 1760 yards

12 Four people equally share £5748. How much do they each get?

$\begin{array}{r} 1437 \\ 4\overline{)5^{1}7^{1}4^{2}8} \end{array}$ £1437

13 4528 people go to a football match. If exactly one-eighth of the people are children, how many children are at the match?

$\begin{array}{r} 0566 \\ 8\overline{)4^{4}5^{5}2^{4}8} \end{array}$ 566

14 Work out the missing number in this calculation.

953 × 5 = 4765

$\begin{array}{r} 0953 \\ 5\overline{)4^{4}7^{2}6^{1}5} \end{array}$

How did I find Step 11? ☐ Easy ☐ OK ☐ Difficult

Step 12: Three- or four-digit ÷ one-digit answers with remainders

So far all the divisions have resulted in whole number answers. But, if the large number is not a multiple of the divisor, the answer will **not** be a whole number. Here the answers have **remainders (r)**.

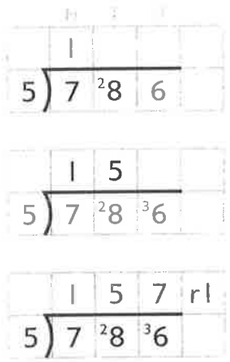
What to do

786 ÷ 5 = ?

1 As usual, working from the left, divide each digit by the divisor. For the hundreds digit ask: *How many 5s in 7?* 7 ÷ 5 = 1 r2. Write the 1 above and carry the 2.

2 Next look at the tens. Instead of 8 we now have 28. Ask: *How many 5s in 28?* 28 ÷ 5 = 5 r3. Write the 5 above and carry the 3.

3 Then look at the units. Instead of 6 we have 36. Divide 36 by 5. 36 ÷ 5 = 7 r1. Write 7 r1 above the line to complete the answer.



Now you try

1 2 1 9 r1
4) 8 7 ³7

2 1 5 7 r1
3) 4 ¹7 ²2

3 1 2 1 r2
6) 7 ¹2 8

4 1 0 2 r3
7) 7 1 ¹7

5 1 2 2 r7
8) 9 ¹8 ²3

6 3 2 5 r2
3) 9 7 ¹7

More practice

Set out these questions yourself to answer them. These are all four-digit numbers.

7 7777 ÷ 4 = ?

Th H T U
1 9 4 4 r1
4) 7 ³7 ¹7 ¹7

8 qqqq ÷ 7 = ?

Th H T U
1 4 2 8 r3
7) 9 ²9 ¹9 ⁵9

9 3333 ÷ 5 = ?

Th H T U
0 6 6 6 r3
5) 3 ³3 ³3 ³3

10 8888 ÷ 3 = ?

Th H T U
2 9 6 2 r2
3) 8 ²8 ¹8 8

Problem solving

11 What is the remainder when 4245 is divided by 6?

0 7 0 7 r3
6) 4 ¹2 4 ¹5

r 3

12 A car factory has 5638 tyres in stock. Four tyres are put on each car. How many cars have four tyres and how many tyres will be left over?

1 4 0 9 r2
4) 5 ¹6 3 ³8

1409 cars and two tyres left over

13 Work out the missing numbers in this calculation.

4765 ÷ 8 = 595 r 5

0 5 9 5 r5
8) 4 ¹7 ⁷6 ¹5

How did I find Step 12? ☐ Easy ☐ OK ☐ Difficult

Step 13: Five-digit ÷ one-digit answers with or without remainders

The questions here have five-digit numbers and some have answers with remainders.

What to do

73229 ÷ 4 = ?

1 As usual, work from the left and divide each digit by the divisor. For the first digit ask: *How many 4s in 7?* 7 ÷ 4 = 1 r3. Write the 1 above and carry the 3.

2 Then look at the next digit. Instead of 3 we now have 33. Ask: *How many 4s in 33?* 33 ÷ 4 = 8 r1. Write the 8 above and carry the 1.

3 Then look at the next digit. Instead of 2 we have 12. 12 ÷ 4 = 3. Write the 3 above.

4 For the next digit as there are **no** 4s in 2. Write 0 above and carry the 2.

5 Finally divide 29 by 4, which is 7 r1. Write this above the line to complete the answer.

	TTh	Th	H	T	U	
		1	8	3	0	7 r1
4)	7	3	2	2	9	

Now you try

1 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 1 | 7 | 8 | 5 | 3 r2 |
| 3) | 5 | 2 3 | 2 5 | 1 6 | 1 | |

2 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 0 | 9 | 4 | 0 | 3 r3 |
| 4) | 3 | 3 7 | 1 6 | 1 | 5 | |

3 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 1 | 4 | 1 | 1 | 6 |
| 6) | 8 | 2 4 | 6 | 9 | 3 6 | |

4 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 0 | 9 | 6 | 6 | 0 r5 |
| 7) | 6 | 6 7 | 4 6 | 4 2 | 5 | |

5 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 2 | 2 | 5 | 1 | 9 r1 |
| 4) | 9 | 1 0 | 2 0 | 7 | 3 7 | |

6 | | TTh | Th | H | T | U | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 1 | 6 | 4 |
| 8) | 9 | 1 7 | 1 3 | 5 | 1 2 | |

More practice

Set out these questions yourself to answer them, including drawing the horizontal and vertical lines.

7 55555 ÷ 7 = ? 7936 r3

	TTh	Th	H	T	U	
		0	7	9	3	6 r3
7)	5	5 5	6 5	2 5	4 5	

8 99999 ÷ 6 = ? 16666 r3

	TTh	Th	H	T	U	
		1	6	6	6	6 r3
6)	9	3 9	3 9	3 9	3 9	

9 33333 ÷ 4 = ? 8333 r1

	TTh	Th	H	T	U	
		0	8	3	3	3 r1
4)	3	3 3	1 3	1 3	1 3	

10 88888 ÷ 7 = ? 12698 r2

	TTh	Th	H	T	U	
		1	2	6	9	8 r2
7)	8	1 8	4 8	6 8	5 8	

Problem solving

11 How many weeks is 30002 days?

	TTh	Th	H	T	U	
		0	4	2	8	6
7)	3	3 0	2 0	6 0	4 2	

4286 weeks

12 Work out the missing numbers in this calculation.

53335 ÷ 4 = 13333 r 3

	TTh	Th	H	T	U	
		1	3	3	3	3 r3
4)	5	1 3	1 3	1 3	1 5	

13 Work out the missing numbers in this calculation.

4998 × 6 = 29992 r 4

	TTh	Th	H	T	U	
		0	4	9	9	8 r4
6)	2	2 9	5 9	5 9	5 2	

How did I find Step 13? ☐ Easy ☐ OK ☐ Difficult

Check-up test 3 Three-, four- and five-digit ÷ one-digit, carrying more than once and remainders

Step 10

1 5) 9 6 5 = 193

2 952 ÷ 4 = ?

4) 9 5 2 = 238

Step 11

3 3) 4 9 4 7 = 1649

4 9075 ÷ 5 = ?

5) 9 0 7 5 = 1815

Step 12

Give your answers with remainders.

5 6) 7 2 8 = 121 r2

6 6666 ÷ 7 = ?

7) 6 6 3 6 = 952 r2

Step 13

7 6) 8 4 6 9 7 = 1411 6 r1

8 67625 ÷ 6 = ?

6) 6 7 6 2 5 = 11270 r5

Steps 10 to 13 mixed

Use the grid below for working.

9 How many weeks is 20006 days? — 2858 weeks

10 Divide 5748 by 4. — 1437

11 A 477cm piece of rope is cut into three equal lengths. How long is each length? — 159cm

12 Divide 642 by 6. — 107

13 What is the remainder when 4765 is divided by 8? — 5

14 Find the missing numbers.

37615 ÷ 4 = 9403 r 3

9) 7) 2 0 6 0 4 0 5 6 = 02858

10) 4) 5 7 4 2 8 = 1437

11) 3) 4 7 2 7 = 159

12) 6) 6 4 4 2 = 107

13) 8) 4 7 7 6 5 = 0595 r5

14) 4) 3 7 1 6 1 1 5 = 09403 r3

Total test score

Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14
%	7	14	21	29	36	43	50	57	64	71	79	86	93	100

14

Step 14: Four-digit ÷ one-digit with fraction remainders

Sometimes when we divide, giving an answer with a remainder doesn't make sense. For example, *Pour 3685ml of water into three jars so that there is the same in each jar.* Having some water left over isn't an option. So your answer can't have a remainder.

3685ml ÷ 3

What to do

3685 ÷ 3 = ?

1 Divide as before and work out what the remainder will be. Here 3685 ÷ 3 = 1228 r1.

Th	H	T	U	
	1	2	2	8 r1
3	3	6	8	5

2 We can't give the answer with a remainder of 1. Dividing the remainder 1 by the divisor 3 gives you the fraction $\frac{1}{3}$ or one-third.

	1	2	2	8 $\frac{1}{3}$
3	3	6	8	5

3 Notice that the numerator of the fraction (the number on top) is the remainder and the denominator (the number on the bottom) is the divisor.

3685ml ÷ 3 = 1228$\frac{1}{3}$

Now you try

Give the remainder for each answer as a fraction.

1

	3	7	0	2 $\frac{1}{2}$
2	7	14	0	5

2

	1	6	0	1 $\frac{3}{4}$
4	6	24	0	7

3

	1	6	7	4 $\frac{3}{5}$
5	8	33	37	23

4

	0	9	4	0 $\frac{4}{7}$
7	6	65	28	4

More practice

Give the remainder for each answer as a fraction.

5

	1	4	1	7 $\frac{1}{6}$
6	8	25	10	43

6

	0	4	1	5 $\frac{8}{9}$
9	3	37	14	53

Problem solving

Give the remainder for each answer as a fraction.

7 A school playground is 2745cm long. The teacher wants to split it into four equal lengths. How long would each length be?

	0	6	8	6 $\frac{1}{4}$
4	2	27	34	25

686$\frac{1}{4}$cm

8 Mayya has 3547ml of juice for a party. She shares it equally between three large jugs. How much juice is in each jug?

	1	1	8	2 $\frac{1}{3}$
3	3	5	24	7

1182$\frac{1}{3}$ml

9 A factory makes wire. A length of wire that is 1138m long is cut into five equal lengths. How long is each length?

	0	2	2	7 $\frac{3}{5}$
5	1	11	13	38

227$\frac{3}{5}$m

10 Work out the missing digits in this calculation.

5 2 7 1 ÷ 8 = 658 $\frac{7}{8}$

	0	6	5	8 $\frac{7}{8}$
8	5	2	47	71

11 A 1648cm length of ribbon is cut into three equal lengths. How long is each length?

	0	5	4	9 $\frac{1}{3}$
3	1	16	14	28

549$\frac{1}{3}$cm

How did I find Step 14? ☐ Easy ☐ OK ☐ Difficult

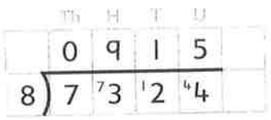
Step 15: Four-digit ÷ one-digit with remainders as decimals, 1 dp

Sometimes it is more appropriate to give the remainder in an answer as a **decimal**. Using the same method of division, it is easy to find decimal answers. We use a decimal point and extra zero digits. Remember that 7324 is the same as 7324.0 (it just has a zero after the decimal point).

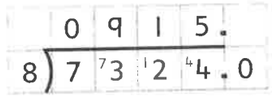
What to do

7324 ÷ 8 = ?

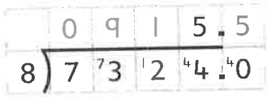
1 As usual, divide each digit by the divisor.



2 When you reach the end and would normally write the remainder, first put a decimal point at the end of the number and also above it in the answer. Next put a zero digit to the right of the number.



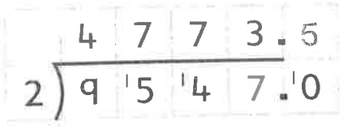
3 Then carry over the remainder. Here it is 4. Divide the digits after the decimal point by the divisor in the usual way. Ask: *How many 8s in 40?* Write the answer 5 above the line to complete the answer.

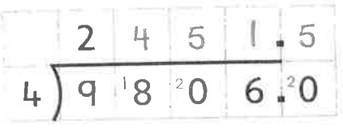


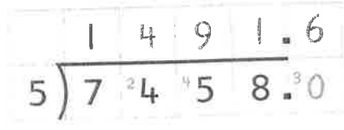
7324 ÷ 8 = 915.5

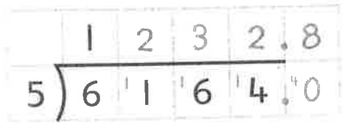
Now you try

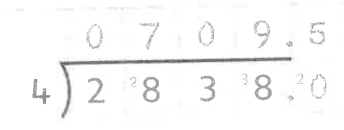
Give the remainder for each answer as a decimal.

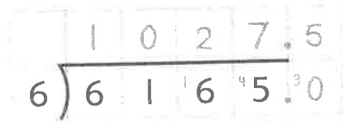
1 

2 

3 

4 

5 

6 

More practice

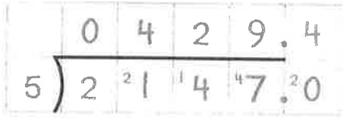
Set out these questions yourself to answer them.

Give the remainder for each answer as a decimal.

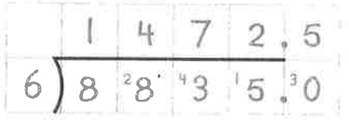
7 5636 ÷ 8 = ?

8 9561 ÷ 5 = ?

9 2147 ÷ 5 = ?



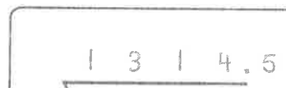
10 8835 ÷ 6 = ?



Problem solving

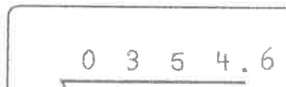
Give the remainder for each answer as a decimal.

11 A building company makes four identical deliveries of bricks. The total weight of the bricks was 5258kg. How heavy was each delivery?



1314.5kg

12 A scientist measures 1773ml of acid. She pours it equally into five measuring jugs. How much does she put into each jug?



354.6ml

13 Eight people win a joint prize. They share the prize of £4860 equally between them. How much does each get?

£607.50

14 Mr Coin gives the same amount of money to each of his five daughters. He gives them £1751 in total. How much is each daughter given?

£350.20

How did I find Step 15? ☐ Easy ☐ OK ☐ Difficult

Step 16: Four-digit ÷ one-digit with remainders as decimals, 2 or 3 dp

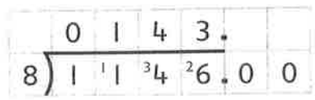
Here the answers will have 2 or 3 decimal places. Remember that 1146 is the same as 1146.00 or 1146.000. You can keep writing zeros after the decimal point without changing the number!

What to do

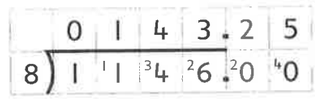
1146 ÷ 8 = ?

1 As usual, divide each digit by the divisor.

2 When you reach the end and would normally write a remainder, first put a decimal point at the end of the number and also above it in the answer. Then put two zeros to the right of the number.



3 Now carry over the remainder. Here it is 2. Divide the digits after the decimal point by the divisor in the usual way, carrying as necessary. Ask: *How many 8s in 20?* Write 2 above and carry 4.



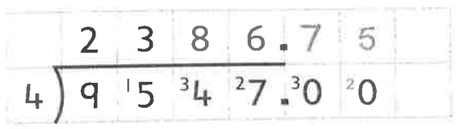
4 Finally divide 40 by 8 and write 5 above to complete the answer.

1146 ÷ 8 = 143.25

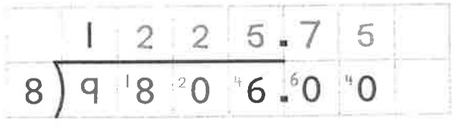
Now you try

Give the remainder for each answer as a decimal.

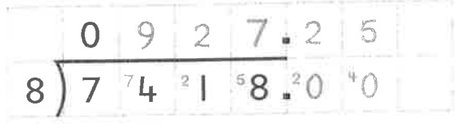
1



2

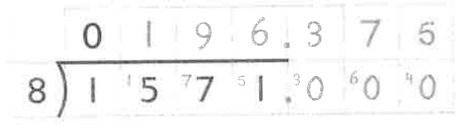


3

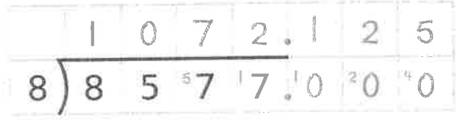


4

5



6

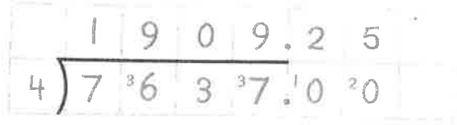


More practice

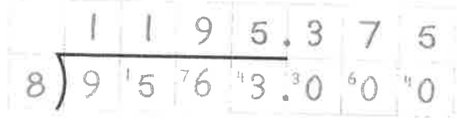
Set out these questions yourself to answer them.

Give the remainder for each answer as a decimal.

7 7637 ÷ 4 = ?



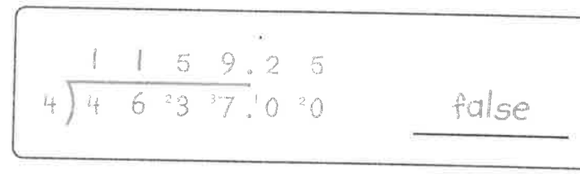
8 9561 ÷ 8 = ?



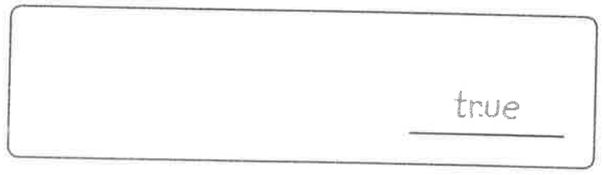
Problem solving

Give the remainder for each answer as a decimal.

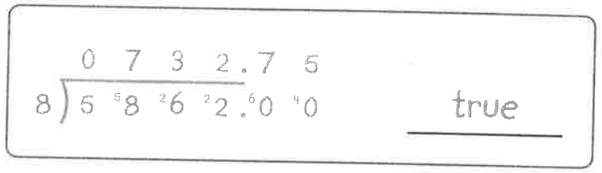
9 When 4637 is divided by 4 the answer is 1159.45. True or false?



10 When any **odd** number is divided by 4 the answer will end in .25 or .75. True or false?



11 If eight people share £5862 equally they will each get £732.75. True or false?



12 Repeat a digit four times to create a four-digit number, for example 3333. Divide it by 8. Using spare paper, do the same for each digit from 1 to 9, dividing by 8 each time. Look for patterns in the last digits of the answers. Which questions give you answers with one digit after the decimal point, which give you two digits after the decimal point, which give you three digits after the decimal point or which give you whole number answers?

1111 → .875 2222 → .75 3333 → .625 4444 → .5 5555 → .375
6666 → .25 7777 → .125 8888 → whole number 9999 → .875

How did I find Step 16? ☐ Easy ☐ OK ☐ Difficult

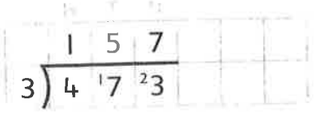
Step 17: Three-digit ÷ one-digit with remainders as recurring decimals

Not every remainder can be written as a decimal with one, two or three digits after the decimal point. Some decimals keep on going forever. They are called **recurring decimals**. You'll see why this happens in this example.

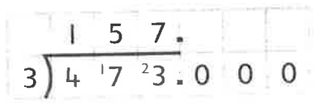
473 ÷ 3 = ?

What to do

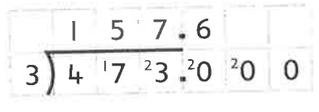
1 Divide each digit by the divisor.



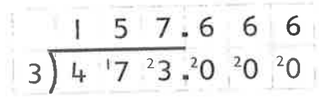
2 When you reach the end and would normally write a remainder, put a decimal point at the end of the number and also above it in the answer. Put zeros to the right of the number.



3 Now carry over the remainder. Here it is 2. Divide the digits after the decimal point by the divisor in the usual way, carrying as necessary. Ask: *How many 3s in 20?* Write 6 above and carry 2.



4 Keep going, but each time you will see that we write 6 above and carry the 2. You could keep going forever! This is a recurring decimal. We write a dot over the last digit to show that it is recurring.

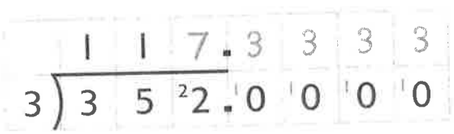


473 ÷ 3 = 157.6̇

Now you try

Write the answers on the lines below.

1



352 ÷ 3 = 117.3̇

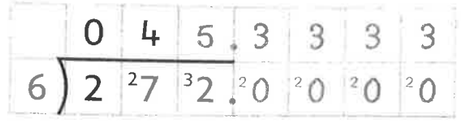
2

481 ÷ 9 = 53.4̇

More practice

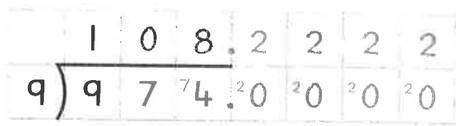
Write the answers on the lines below.

3



272 ÷ 6 = 45.3̇

4



974 ÷ 9 = 108.2̇

5

191 ÷ 3 = 63.6̇

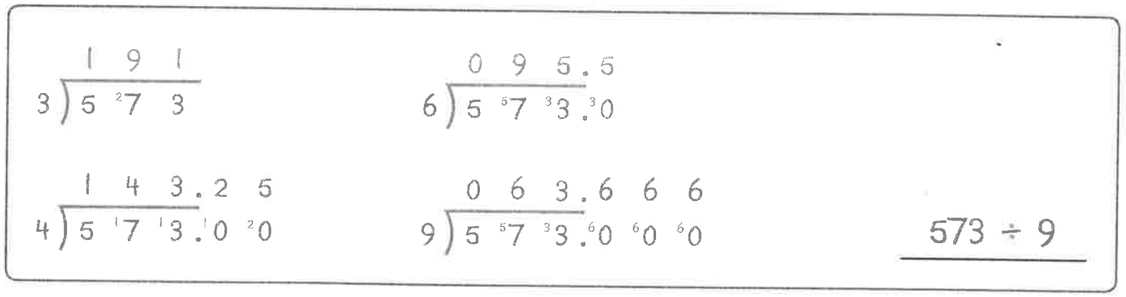
6

476 ÷ 9 = 52.8̇

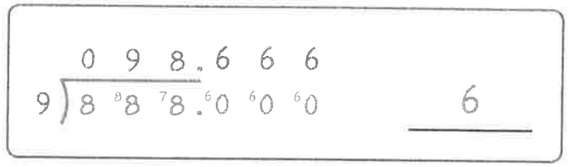
Problem solving

7 Which of these divisions gives a recurring decimal answer?

573 ÷ 3 573 ÷ 6 573 ÷ 4 573 ÷ 9



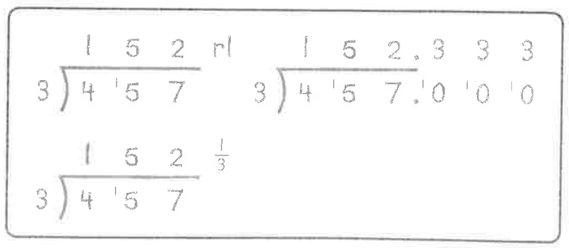
8 Which digit recurs in the question 888 ÷ 9?



9 Kim divides 457 by 3. Which three of the answers below are correct answers to 457 ÷ 3? Circle them.

152 r1 $152\frac{1}{2}$ 152 152.3

152.1 152.3̇ $152\frac{1}{3}$



How did I find Step 17? ☐ Easy ☐ OK ☐ Difficult

Step 18: Dividing decimals by one-digit numbers

Now that you know how to divide whole numbers by one-digit numbers you can divide decimals in the same way. Just follow the same method and make sure you put the decimal point in the correct place in the answer.

What to do

7.32 ÷ 8 = ?

1 Write a decimal point in the answer directly above the decimal point in the number.

2 As usual, divide each digit by the divisor.

3 If necessary, write zeros at the end of the number to help you complete the answer. You can do this because 7.32 is the same as 7.320 or 7.3200.

4 Now carry over the remainder. Here it is 4. Divide 40 by 8 to complete the answer.

$$8\overline{)7.32} \quad 8\overline{)7.^{7}3\,^{1}2} \quad 8\overline{)7.^{7}3\,^{1}2\,0} \quad 8\overline{)7.^{7}3\,^{1}2\,^{4}0}$$

7.32 ÷ 8 = 0.915

Now you try

1 $2\overline{)9.^{1}5\,^{1}4}$ = 4.77

2 $4\overline{)9.^{1}8\,^{2}0}$ = 2.45

3 $5\overline{)2.^{2}4\,^{4}8\,^{3}0}$ = 0.496

4 $5\overline{)6.1\,^{1}6\,^{1}0}$ = 1.232

5 $8\overline{)3.^{3}4\,^{2}2\,^{6}0\,^{4}0}$ = 0.4275

6 $6\overline{)6.1\,^{1}5\,^{3}0}$ = 1.025

More practice

Set out these questions yourself to answer them. Write the answers on the lines.

7 5.63 ÷ 8 = ?

$$8\overline{)5.^{5}6\,3\,^{3}0\,^{6}0\,^{4}0} = 0.70375$$

5.63 ÷ 8 = 0.70375

8 9.61 ÷ 5 = ?

$$5\overline{)9.^{4}6\,^{1}1\,^{1}0} = 1.922$$

9.61 ÷ 5 = 1.922

Problem solving

9 What is £9.15 shared equally between five friends?

$$5\overline{)9.^{4}1\,^{1}5} = 1.83$$

£1.83

10 A scientist has 1.78kg of crystals, which he puts into eight equal piles. How heavy is each pile?

$$8\overline{)1.^{1}7\,^{2}8\,^{4}0} = 0.2225$$

0.2225kg

11 A nurse must measure one-fifth of a dose of medicine to give to a child. If the full dose is 9.84ml, how much should be given to the child?

$$5\overline{)9.^{4}8\,^{3}4\,^{4}0} = 1.968$$

1.968ml

12 A length of wood that is 2.72m long is cut into four equal pieces. How long is each piece in metres?

$$4\overline{)2.^{2}7\,^{3}2} = 0.68$$

0.68m

13 Divide 3.04 by 8.

$$8\overline{)3.^{3}0\,^{6}4} = 0.38$$

0.38

How did I find Step 18? ☐ Easy ☐ OK ☐ Difficult

Final test Whole numbers or decimals ÷ one-digit, with remainders

Step 14

Give the remainder for each answer as a fraction.

1

$$4\overline{)6^{2}4\ 0\ 7} = 1601\ \tfrac{3}{4}$$

2 3743 ÷ 9 = ?

$$9\overline{)3\ ^{3}7\ ^{1}4\ ^{5}3} = 0415\ \tfrac{8}{9}$$

Steps 15 and 16

Give your answers as decimals.

3

$$5\overline{)2^{2}1\ ^{1}4\ ^{4}7.^{2}0} = 0429.4$$

4 2977 ÷ 8 = ?

$$8\overline{)2\ ^{2}9\ ^{5}7\ ^{1}7.^{1}0\ ^{2}0\ ^{4}0} = 0372.125$$

Step 17

Give your answers as recurring decimals.

5

$$3\overline{)5\ ^{2}7\ 4.^{1}0\ ^{1}0\ ^{1}0\ ^{1}0} = 1911.3333$$

574 ÷ 3 = 191.3̇

6

$$9\overline{)9\ 7\ ^{7}4.^{2}0\ ^{2}0\ ^{2}0\ ^{2}0} = 1082.2222$$

974 ÷ 9 = 108.2̇

Step 18

Give your answers as decimals.

7

$$5\overline{)7.^{2}4\ ^{4}9\ ^{4}0} = 1.498$$

8 5.7 ÷ 8 = ?

$$8\overline{)5.^{5}7\ ^{1}0\ ^{2}0\ ^{4}0} = 0.7125$$

Steps 1 to 18 mixed

Use the grid below for working.

9 How many cars can have four new tyres if there are 876 tyres? — 219

10 762 ÷ 6 has the same answer as 381 ÷ 3. True or false? — true

11 Jay has five times as much money as Lin has. If Jay has £8485, how much does Lin have? — £1697

12 A factory puts cakes into packs of six. How many packs are made with 6306 cakes? — 1051

13 Divide 885 by 3. — 295

14 There are three feet in a yard. How many yards is 4782 feet? — 1594 yards

15 £4766 is shared equally between eight friends. How much does each get? — £595.75

16 Divide 3525 by 6 and give the remainder both as a fraction and as a decimal. — $587\frac{3}{6}$ (or $\frac{1}{2}$), 587.5

9) $4\overline{)8\ 7\ ^{3}6} = 219$

10) $6\overline{)7\ ^{1}6\ ^{4}2} = 127$ $3\overline{)3\ 8\ ^{2}1} = 127$

11) $5\overline{)8\ ^{3}4\ ^{4}8\ ^{3}5} = 1697$

12) $6\overline{)6\ 3\ ^{3}0\ 6} = 1051$

13) $3\overline{)8\ ^{2}8\ ^{1}5} = 295$

14) $3\overline{)4\ ^{1}7\ ^{2}8\ ^{1}2} = 1594$

15) $8\overline{)4\ ^{4}7\ ^{7}6\ ^{4}6.^{6}0\ ^{4}0} = 595.75$

16) $6\overline{)3\ ^{3}5\ ^{5}2\ ^{4}5.^{3}0} = 5875$

Total test score

Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
%	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100

16