

Today, we are going to revise  
short division.

- Looking at decimal remainders

I want to calculate  $143 \div 2 =$

|   |   |   |   |  |
|---|---|---|---|--|
|   |   |   |   |  |
| 2 | 1 | 4 | 3 |  |

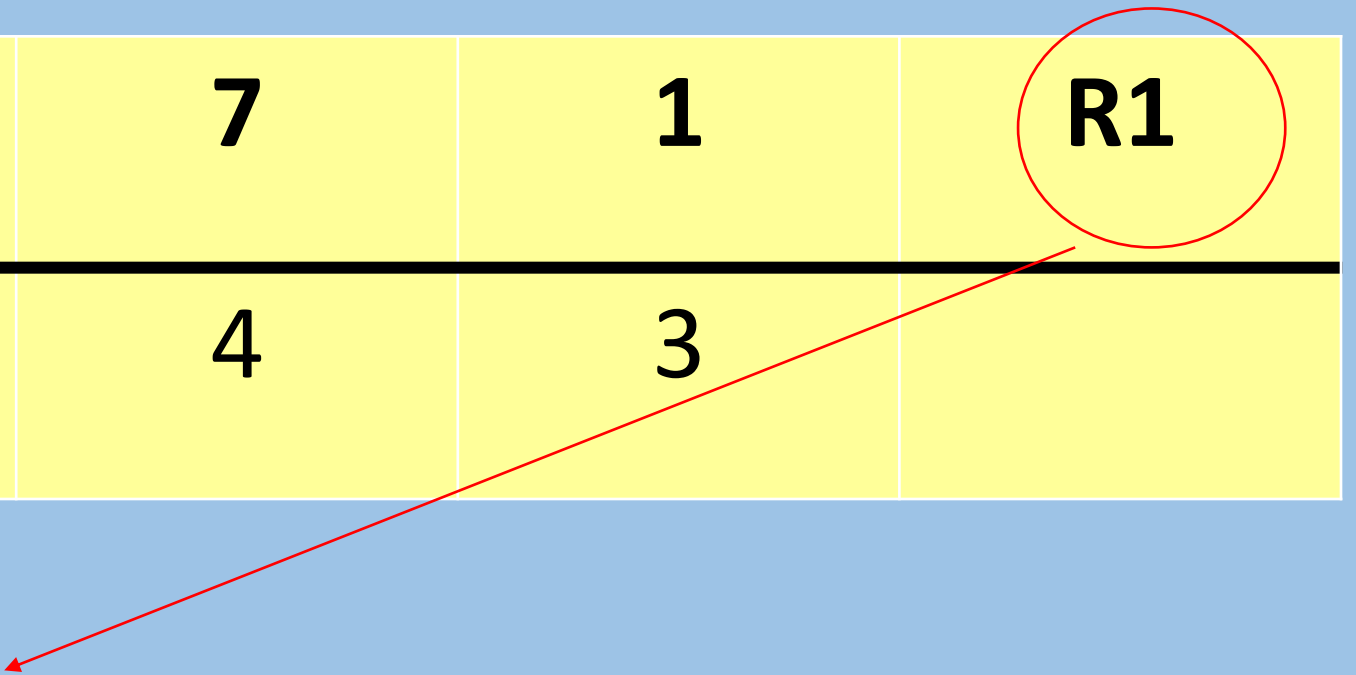
This would be...

|          |          |                       |          |           |
|----------|----------|-----------------------|----------|-----------|
|          | <b>0</b> | <b>7</b>              | <b>1</b> | <b>R1</b> |
| <b>2</b> | <b>1</b> | <sup>1</sup> <b>4</b> | <b>3</b> |           |

The answer is 71 remainder 1  
or 71 R 1.

But I can express my remainder in another way.

|          |          |          |          |           |
|----------|----------|----------|----------|-----------|
|          | <b>0</b> | <b>7</b> | <b>1</b> | <b>R1</b> |
| <b>2</b> | <b>1</b> | <b>4</b> | <b>3</b> |           |

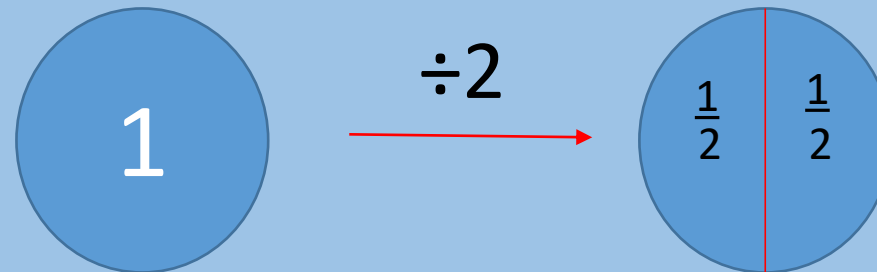


This remainder 1 could be divided by 2 also.

# Remainder 1...

I want to do  $1 \div 2$ .

I can think of it like this...



So,  $143 \div 2$  is...

- 71 R 1

and

- 71 and a half

and

- 71.5

All answers are correct, but the remainders have been expressed in different ways.

• 71 R 1

and

simple remainder



• 71 and a half

and

fraction remainder



• 71.5

decimal remainder



Decimal remainders can also be calculated like this...

|          |          |          |          |   |
|----------|----------|----------|----------|---|
|          | <b>0</b> | <b>7</b> | <b>1</b> | • |
| <b>2</b> | <b>1</b> | <b>4</b> | <b>3</b> | • |

When you get this far, put in 2 decimal points.



Decimal remainders can also be calculated like this...

|          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|
|          | <b>0</b> | <b>7</b> | <b>1</b> | <b>.</b> |          |
| <b>2</b> | <b>1</b> | <b>4</b> | <b>3</b> | <b>.</b> | <b>0</b> |

Then place a zero here.



Decimal remainders can also be calculated like this...

|   |   |   |   |   |                |
|---|---|---|---|---|----------------|
|   | 0 | 7 | 1 | • |                |
| 2 | 1 | 4 | 3 | • | <sup>1</sup> 0 |

Then place the remainder 1 here. Now we have 10.

Decimal remainders can also be calculated like this...

|   |   |   |   |   |                |
|---|---|---|---|---|----------------|
|   | 0 | 7 | 1 | • | 5              |
| 2 | 1 | 4 | 3 | • | <sup>1</sup> 0 |

So, 2 goes into 10 five times.

71.5 is the same as 71 and a half!

|          |          |          |          |   |                       |
|----------|----------|----------|----------|---|-----------------------|
|          | <b>0</b> | <b>7</b> | <b>1</b> | • | <b>5</b>              |
| <b>2</b> | <b>1</b> | <b>4</b> | <b>3</b> | • | <sup>1</sup> <b>0</b> |

Let's try  $57 \div 4$ . There is going to be a remainder because 57 is an odd number.

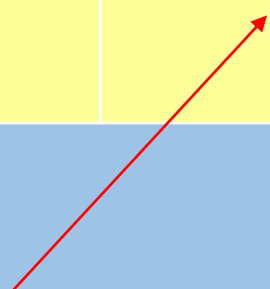
|   |   |   |  |  |
|---|---|---|--|--|
|   |   |   |  |  |
| 4 | 5 | 7 |  |  |

We want to express this remainder as a decimal, so we put the decimal points in ready with the zero place holder.

|   |   |   |   |  |
|---|---|---|---|--|
|   |   |   |   |  |
| 4 | 5 | 7 | 0 |  |

Carry out the calculation and notice that there will be another remainder...

|          |          |                       |          |                       |          |
|----------|----------|-----------------------|----------|-----------------------|----------|
|          | <b>1</b> | <b>4</b>              | <b>•</b> | <b>2</b>              |          |
| <b>4</b> | <b>5</b> | <sup>1</sup> <b>7</b> | <b>•</b> | <sup>1</sup> <b>0</b> | <b>0</b> |



So we need another zero here.

Place the remainder next to the new zero...

|          |          |                       |          |                       |                       |
|----------|----------|-----------------------|----------|-----------------------|-----------------------|
|          | <b>1</b> | <b>4</b>              | <b>•</b> | <b>2</b>              |                       |
| <b>4</b> | <b>5</b> | <sup>1</sup> <b>7</b> | <b>•</b> | <sup>1</sup> <b>0</b> | <sup>2</sup> <b>0</b> |



Finally, calculate  $20 \div 4$

|          |          |                       |          |                       |                       |
|----------|----------|-----------------------|----------|-----------------------|-----------------------|
|          | <b>1</b> | <b>4</b>              | <b>.</b> | <b>2</b>              | <b>5</b>              |
| <b>4</b> | <b>5</b> | <sup>1</sup> <b>7</b> | <b>.</b> | <sup>1</sup> <b>0</b> | <sup>2</sup> <b>0</b> |

The answer is 14.25 which is also the same as 14 and a quarter.

Let's try  $111 \div 4$ . There is going to be a remainder because 111 is an odd number.

|   |   |   |   |  |
|---|---|---|---|--|
|   |   |   |   |  |
| 4 | 1 | 1 | 1 |  |

Put in the decimal points and zero place holder ready.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
| 4 | 1 | 1 | 1 | • | 0 |

Do the calculation...

|          |          |                       |                       |          |                       |
|----------|----------|-----------------------|-----------------------|----------|-----------------------|
|          | <b>0</b> | <b>2</b>              | <b>7</b>              | <b>•</b> | <b>7</b>              |
| <b>4</b> | <b>1</b> | <sup>1</sup> <b>1</b> | <sup>3</sup> <b>1</b> | <b>•</b> | <sup>3</sup> <b>0</b> |

I need another zero place holder!

Complete the calculation...

|   |   |                |                |   |                |                |
|---|---|----------------|----------------|---|----------------|----------------|
|   | 0 | 2              | 7              | • | 7              | 5              |
| 4 | 1 | <sup>1</sup> 1 | <sup>3</sup> 1 | • | <sup>3</sup> 0 | <sup>2</sup> 0 |

The answer is 27.75 or  
27 and three quarters.

Try these...

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|   |   |   |   | • |   |   |
| 5 | 3 | 6 | 9 | • | 0 | 0 |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|   |   |   |   | • |   |   |
| 4 | 1 | 5 | 8 | • | 0 | 0 |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|   |   |   |   | • |   |   |
| 4 | 2 | 5 | 9 | • | 0 | 0 |

Answers...

|          |          |                       |                       |          |                       |                       |
|----------|----------|-----------------------|-----------------------|----------|-----------------------|-----------------------|
|          | <b>0</b> | <b>7</b>              | <b>3</b>              | <b>•</b> | <b>8</b>              |                       |
| <b>5</b> | <b>3</b> | <sup>3</sup> <b>6</b> | <sup>1</sup> <b>9</b> | <b>•</b> | <sup>4</sup> <b>0</b> | <b>0</b>              |
|          | <b>0</b> | <b>3</b>              | <b>9</b>              | <b>•</b> | <b>5</b>              |                       |
| <b>4</b> | <b>1</b> | <sup>1</sup> <b>5</b> | <sup>3</sup> <b>8</b> | <b>•</b> | <sup>2</sup> <b>0</b> | <b>0</b>              |
|          | <b>0</b> | <b>6</b>              | <b>4</b>              | <b>•</b> | <b>7</b>              | <b>5</b>              |
| <b>4</b> | <b>2</b> | <sup>2</sup> <b>5</b> | <sup>1</sup> <b>9</b> | <b>•</b> | <sup>3</sup> <b>0</b> | <sup>2</sup> <b>0</b> |

# Now try some independent practice.

- Remember we are looking for decimal remainders.
- Put in 2 decimal points ready.
- Put in a zero place holder ready.
- You might need to add in another zero or two if you still have remainders.