1) a) 23r2 b) 49r10 c) 252r5 d) 70r16

2) a) 32r15 b) 37r5 c) 160r8 d) 174r15

3) 28 cups of lemonade.

The headteacher will have 4p left over.

			2	8	r	4
3	2	9	0	0		
	–	6	4	↓		
		2	6	0		
	–	2	5	6		
				4		

a) True - only 954 and 367 are not divisible by 15 and therefore will leave a remainder. 495 and 855 are both multiples of 15.

b) False - both calculations that have a remainder have remainders that are odd numbers.

c) True - both of the numbers which are multiples of 15 are also multiples of 45.

2) Accept an explanation that shows Jia is correct. Jia has used a factor pair of 14 to help her work out if the number is divisible by 14. 2 and 7 are factor pairs of 14; therefore, any number divisible by both 2 and 7 will also be divisible by 14. Bartek has not used factors of 14. He has just partitioned 14.

3) Emily is incorrect. The correct answer is 121r15. The remainder must be smaller than 19.

1) Amrit's number could be: 108, 123, 138, 153, 168, 183, 198, 213, 228, 243, 258, 273, 288.

Elias's number could be: 211, 230, 249, 268, 287.

Abi's number could be: 100, 132, 164, 196, 228, 260, 292, 324.

			2	8	8	r	**3**	
2	6	7	**4**	9	1			
		5	2	↓	↓			
		2	2	9				
	–	2	0	8				
			2	1	**1**			
		–	2	0	8			
					3			

3) The farmer will need 32 boxes.

Long Division with Remainders

1) Elena uses her knowledge of multiples of 17 to complete this calculation.

Multiples of 17
17 × 1 = 17
17 × 2 = 34
17 × 3 = 51

			2	3	r	5
1	7	3	9	6		
	–	3	4	0		
			5	6		
		–	5	1		
				5		

(17 × 20)

(17 × 3)

Use this method on squared paper to calculate:

a) 738 ÷ 32 =
b) 647 ÷ 13 =
c) 3785 ÷ 15 =
d) 1486 ÷ 21 =

2) Felix uses a different method.

			2	3	r	5
1	7	3	9	6		
	–	3	4	↓		
			5	6		
		–	5	1		
				5		

Use this method on squared paper to calculate:

a) 623 ÷ 19 =
b) 856 ÷ 23 =
c) 2568 ÷ 16 =
d) 4365 ÷ 25 =

3) A class is raising money for the school by selling lemonade for 32p a cup. How many cups could the headteacher buy for the staffroom with £9? How much money will be left over?

Long Division with Remainders

1) Look at these division calculations and decide if the statements are true or false. Explain your reasoning.

Use squared paper if you need it to complete the division calculations.

495 ÷ 15 =	367 ÷ 15 =
855 ÷ 15 =	954 ÷ 15 =

a) Only two of these calculations will leave a remainder because the other two questions have dividends which are multiples of 15.

b) One of these calculations has a remainder which is odd.

c) Two of these calculations can also be divided by 45 without leaving a remainder.

2) Two children have been asked to solve 2422 ÷ 14.

Jia

I don't think that there will be a remainder because 2422 will be a multiple of 14 as it is divisible by 2 and 7.

I think that this will leave a remainder because 2422 is not a multiple of 4 or a multiple of 10.

Bartek

Who is correct? Prove it.

3) Emily has completed the calculation 2314 ÷ 19.

Emily

The answer is 121 remainder 21.

Is she correct?
Explain how you know.

Long Division with Remainders

1) Investigate which numbers could match each statement. Find all possible answers.

Use squared paper if you need it to complete the division calculations.

Amrit

This 3-digit number is less than 300. If I divide it by 15, my remainder is 3.

This number is between 200 and 300. If I divide it by 19, the remainder is 2.

Elias

Abi

I have a 3-digit even number that is less than 350. When I divide it by 32, the remainder is 4.

2) Find the missing numbers in this calculation.

			2	8	8	r	□	
2	6	7	□	9	1			
		5	2	↓				
		2	2	9				
	-	2	0	8	↓			
			□	1	□			
		-	2	0	8			
					□			

3) 499 oranges have been harvested from the orchard. They need to be packed into boxes. If each box holds 16 oranges, how many boxes will the farmer need?

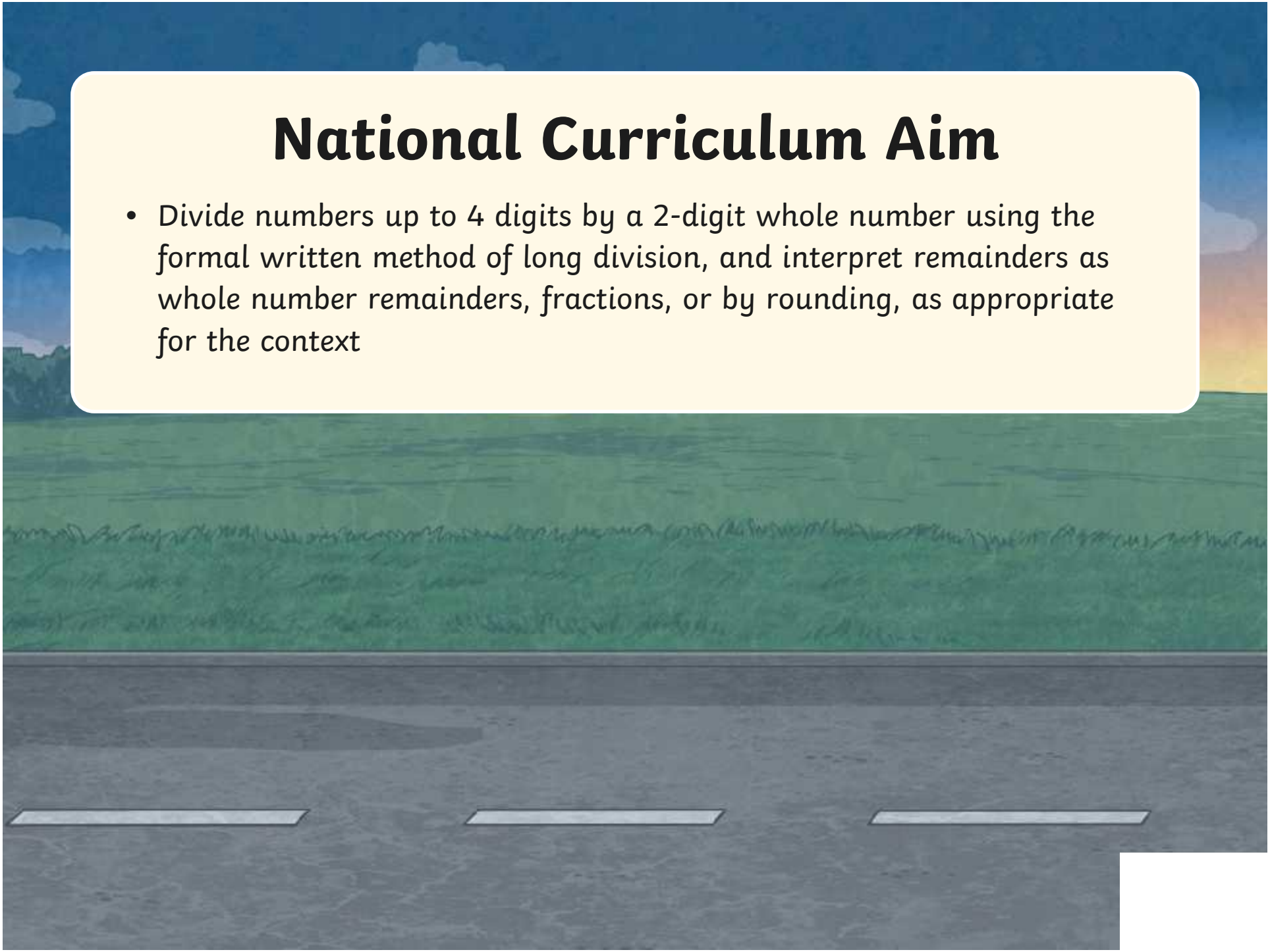
Long Division with Remainders

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.



National Curriculum Aim

- Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

Long Division with Remainders

Diving

Priya uses her knowledge of multiples of 16 to complete this calculation.

Multiples of 16
16 × 1 = 16
16 × 2 = 32
16 × 3 = 48
16 × 4 = 64

			2	4	r	4
1	6	3	8	8		
	–	3	2	0		(16 × 20)
			6	8		
		–	6	4		(16 × 4)
				4		

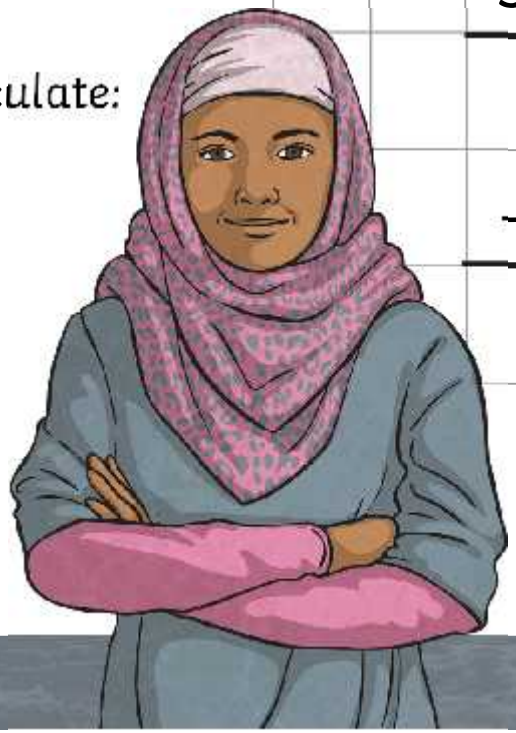
Use this method to calculate:

a) 326 ÷ 18 =

b) 539 ÷ 22 =

c) 2575 ÷ 15 =

d) 3423 ÷ 34 = _ _ _ _ _



Long Division with Remainders

Diving

Joseph uses a different method.

			2	4	r	4
1	6	3	8	8		
		–	3	2		
				↓		
			6	8		
		–	6	4		
				4		

Use this method to calculate:

a) 453 ÷ 17 =

b) 762 ÷ 25 =

c) 2143 ÷ 19 =

d) 3621 ÷ 32 =

Long Division with Remainders

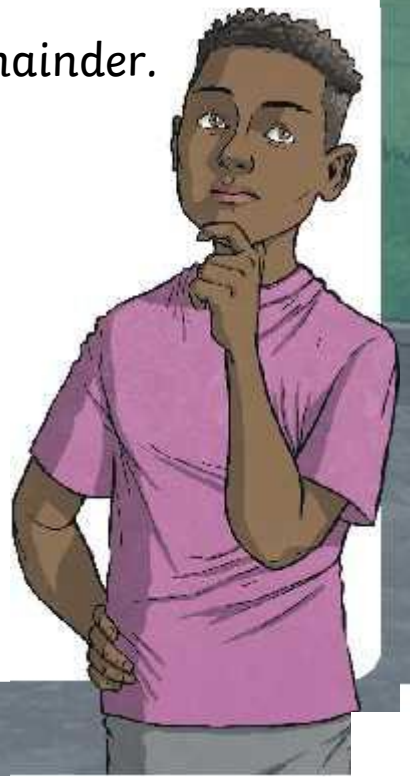
Deeper

Look at these division calculations and decide if the statements are true or false. Explain your reasoning.

347 ÷ 25 =	950 ÷ 25 =	654 ÷ 25 =

Two of these numbers will divide by 25 without leaving a remainder.

One of these numbers will give a remainder that is even.



Long Division with Remainders

Deeper

Two children have been asked to solve 3390 ÷ 15.

Drew

I don't think that there will be a remainder because 3390 is a multiple of 30 so it will also be a multiple of 15.

I don't think that there will be a remainder because 3390 is divisible by 3 and 5, which are both factors of 15.

Zeke

Long Division with Remainders

Deepest

Investigate which numbers could match each statement. Find all possible answers.

Hari

My 3-digit number is greater than 100 and less than 600. If I divide it by 14, the remainder is 5.

My number is between 400 and 500. When I divide it by 22, the remainder is 11.

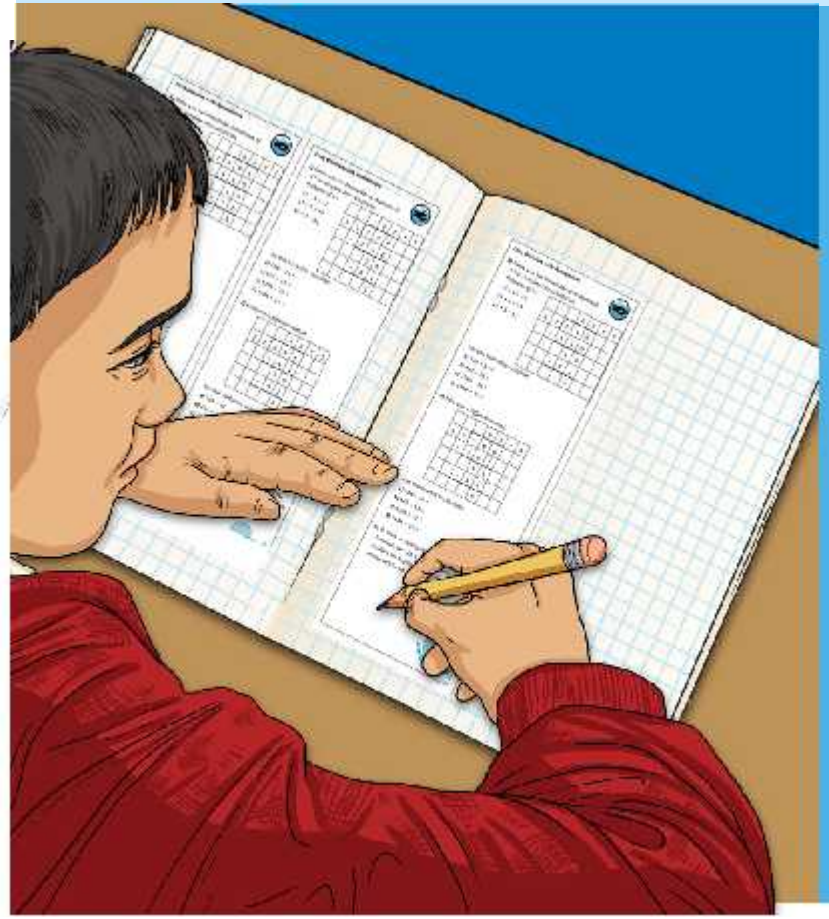
Elias

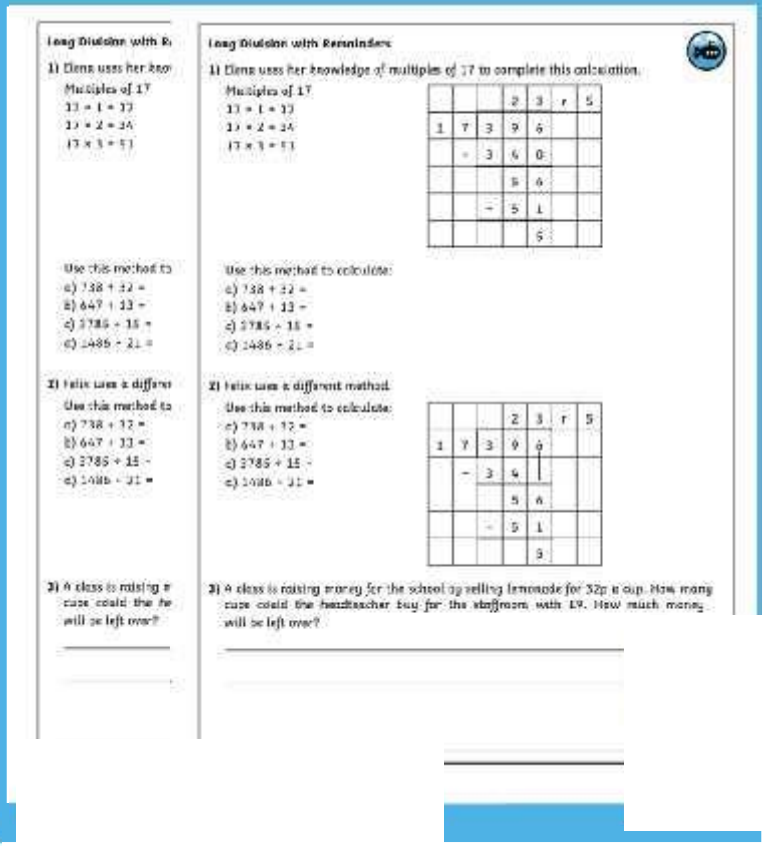
Drew

My number is between 400 and 600. When I divide it by 32, the remainder is 4.

Long Division with Remainders

Dive in by completing your own activity!





Long Division with Remainders

1) Elena uses her knowledge of multiples of 17 to complete this calculation.

Multiples of 17
17 × 1 = 17
17 × 2 = 34
17 × 3 = 51

			2	3	r	5
1	7	3	9	6		
	-	3	4	0		
			5	6		
		-	5	1		
				5		

Use this method to calculate:
a) 738 ÷ 32 =
b) 647 ÷ 33 =
c) 3785 ÷ 15 =
d) 1486 ÷ 21 =

2) Felix uses a different method.
Use this method to calculate:
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			2	3	r	5
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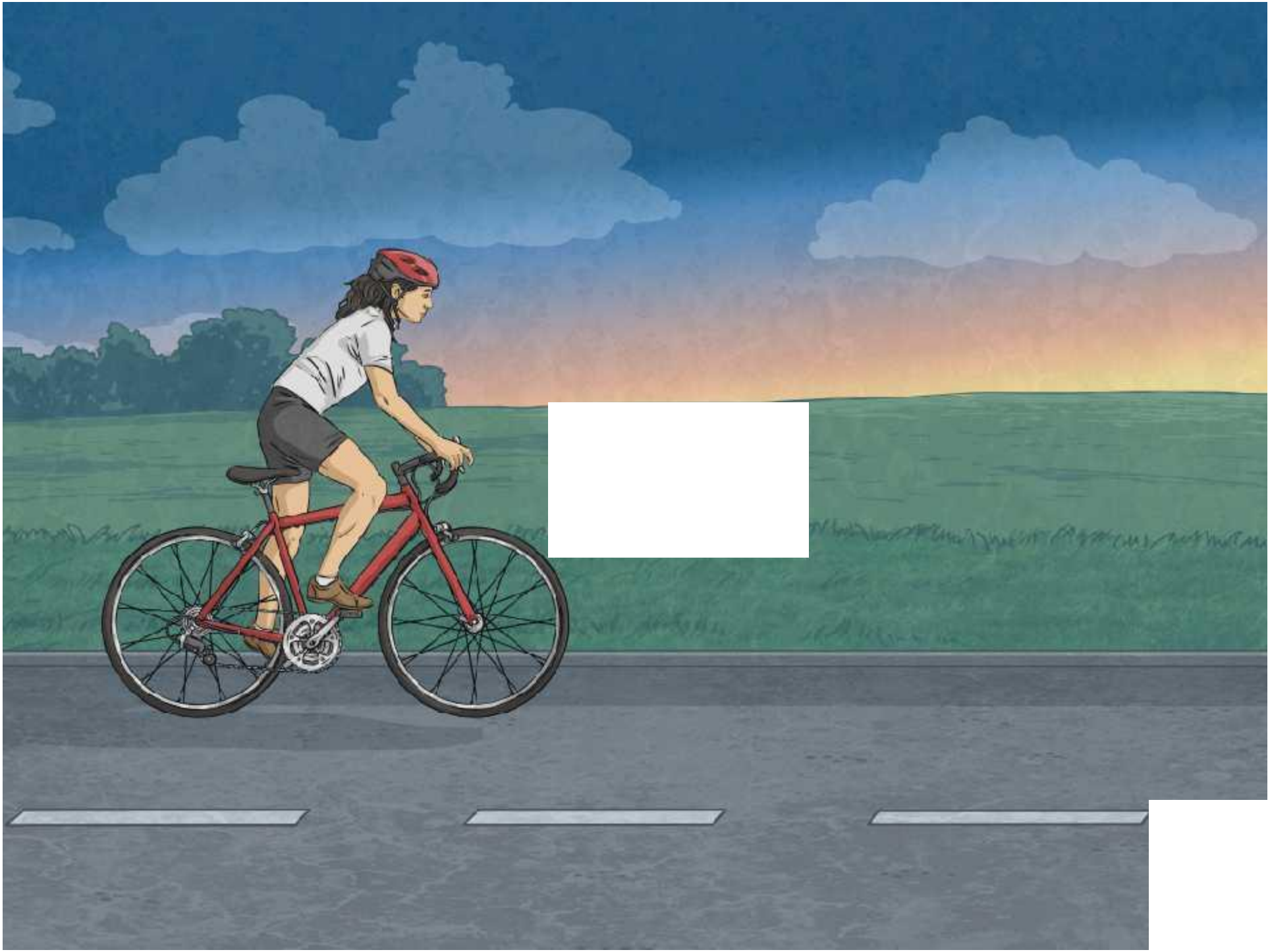

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		–	5	1		
				5		

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2) Find the missing numbers in this calculation.

			2	8	8	r	□	
2	6	7	□	9	1			
		5	2	↓				
		2	2	9	↓			
	−	2	0	8				
			□	1	□			
		−	2	0	8			
					□			

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			2	8	8	r	□	
2	6	7	□	9	1			
		5	2	↓				
		2	2	9	↓			
	−	2	0	8				
			□	1	□			
		−	2	0	8			
					□			

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