



THIRD SPACE LEARNING

Specialist 1-to-1 maths interventions
and curriculum resources

Rapid Reasoning

Year 4 | Week 3

As this is the third week of *Rapid Reasoning* in Year 4, hopefully children will be increasingly confident and able to answer all three questions in the time given.

This week, the Year 4 objectives introduced continue to focus on **place value**.

Year 4 objectives introduced in a reasoning context for the first time this week include:

- rounding any number to the nearest 10, 100 or 1,000.

The following Year 4 objectives continue to be a focus from week 2:

- finding 10, 100 or 1000 more or less than a given number (children should be encouraged to use their knowledge of place value in order to do this)
- ordering and comparing numbers beyond 1,000
- recognising the place value of each digit in a four-digit number.

Objectives from *Fluent in Five* that are also tested in a reasoning context this week include:

- mental addition and subtraction
- more complex written addition and subtraction, including the crossing of place value boundaries, but not extending beyond 1,000.

Please note that some questions are worth two marks, and by their very nature, answers to these questions are never clear-cut. For a full breakdown of how marks would be awarded for these questions, please refer to the mark schemes provided.

Q1

Place these numbers in order, starting with the smallest.

699 66,000 16,043 6,853 6,843

smallest

1 mark

Q2

Sam knows that: $8 \times 5 = 40$

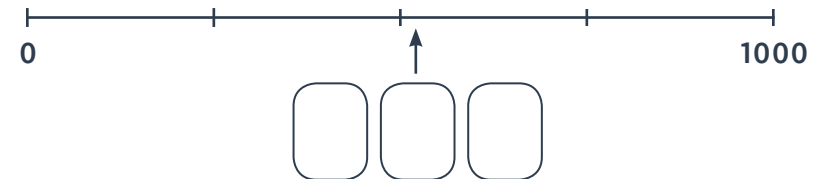
Write three other facts that Sam can work out based on this fact.

1 mark

Q3

6 2 5 7 0

Use the digit cards to fill the boxes to show what number the arrow is pointing to.



2 marks

Q1

Place these numbers in order, starting with the smallest.

699 66,000 16,043 6,853 6,843

smallest

699

6,843

6,853

16,043

66,000

1 mark

Q2

Sam knows that: $8 \times 5 = 40$

Write three other facts that Sam can work out based on this fact.

$40 \div 5 = 8$

$40 \div 8 = 5$

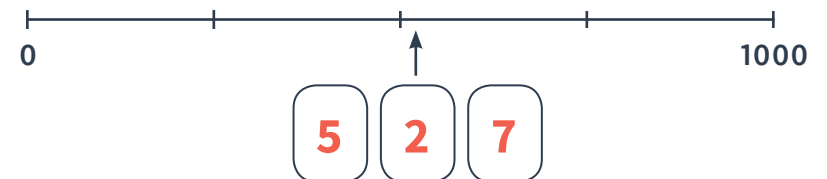
$5 \times 8 = 40$

1 mark

Q3

6 2 5 7 0

Use the digit cards to fill the boxes to show what number the arrow is pointing to.



1 mark

	Requirement	Mark	Additional guidance
Q1	699 6,843 6,853 16,043 66,000	1	
Q2	40 ÷ 5 = 8 40 ÷ 8 = 5 5 × 8 = 40 Accept in any order.	1	3 correct facts need to be provided Also credit any other facts that could realistically be linked to 8 × 5 = 40.
Q3	5 2 0 OR 5 2 7 OR 5 2 6	1	

Q1

Write the value of the digit 9 in these three numbers in the box next to each number.

3090

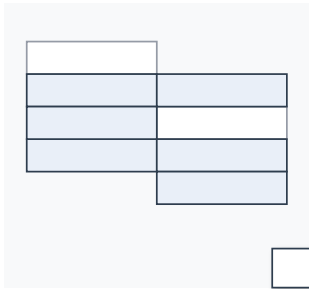
9032

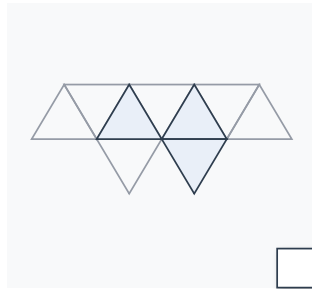
3902

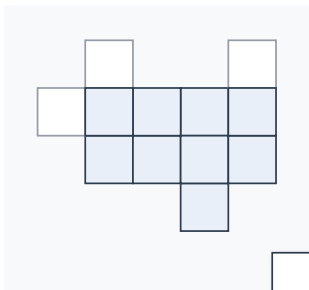
2 marks

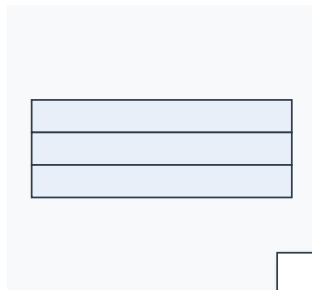
Q2

Tick the two shapes that have $\frac{3}{4}$ shaded.









1 mark

Q3

This sequence increases in steps of 1,000 each time.

Fill in the missing numbers.

5,674

7,674

8,674

2 marks

Q1

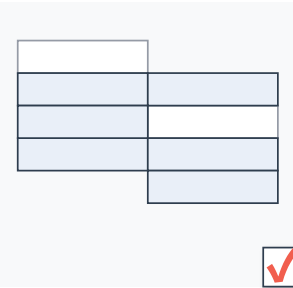
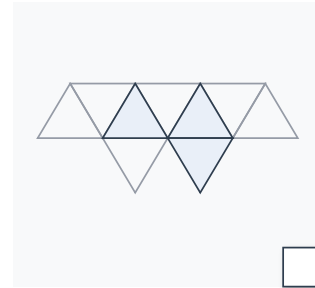
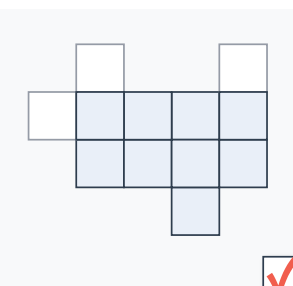
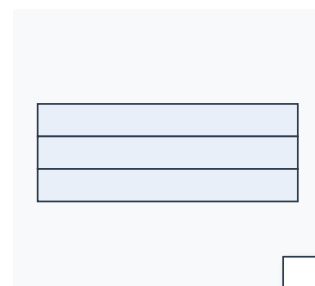
Write the value of the digit 9 in these three numbers in the box next to each number.

30 <u>9</u> 0	90
<u>9</u> 032	9000
3 <u>9</u> 02	900

2 marks

Q2

Tick the two shapes that have $\frac{3}{4}$ shaded.

 <input checked="" type="checkbox"/>	 <input type="checkbox"/>
 <input checked="" type="checkbox"/>	 <input type="checkbox"/>

1 mark

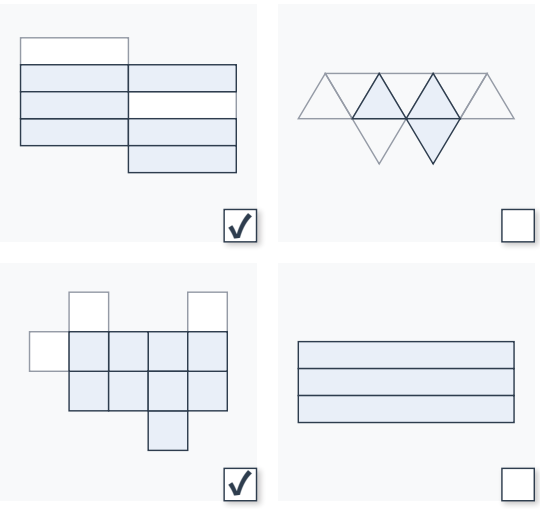
Q3

This sequence increases in steps of 1,000 each time.

Fill in the missing numbers.

4,674	5,674	6,674	7,674
	8,674	9,674	10,674

2 marks

	Requirement	Mark	Additional guidance
Q1	<p>Award TWO marks for all correct answers. Award ONE mark for two correct answers.</p> <p>30<u>9</u>0 90 <u>9</u>032 9000 3<u>9</u>02 900</p>	2	Also accept the values written in words.
Q2		1	BOTH must be ticked with no incorrect shapes ticked for the award of the mark.
Q3a	<p>Award TWO marks for all four numbers completed correctly.</p> <p>4,674 5,674 6,674 7,674 8,674 9,674 10,674</p> <p>Award ONE mark for two or more numbers completed correctly.</p>	2	

Q1 A group of four friends wash cars to earn some pocket money.

They raise £80 altogether.

They share the money equally.

How much money does each friend get?

£

1 mark

Q2 In a shop there are three different styles of t-shirts.

Each t-shirt comes in BLUE, YELLOW or GREEN.

How many different t-shirts are there in total?

1 mark

Q3 Mark is thinking of a two-digit number. He says, “When rounded to the nearest 10, it is 50.”

Complete the following statements.

The largest number Mark could be thinking of is .

The smallest number Mark could be thinking of is .

1 mark

Q1 A group of four friends wash cars to earn some pocket money.

They raise £80 altogether.

They share the money equally.

How much money does each friend get?

£ **20**

1 mark

Q2 In a shop there are three different styles of t-shirts.

Each t-shirt comes in BLUE, YELLOW or GREEN.

How many different t-shirts are there in total?

12

1 mark

Q3 Mark is thinking of a two-digit number. He says, “When rounded to the nearest 10, it is 50.”

Complete the following statements.

The largest number Mark could be thinking of is **54**.

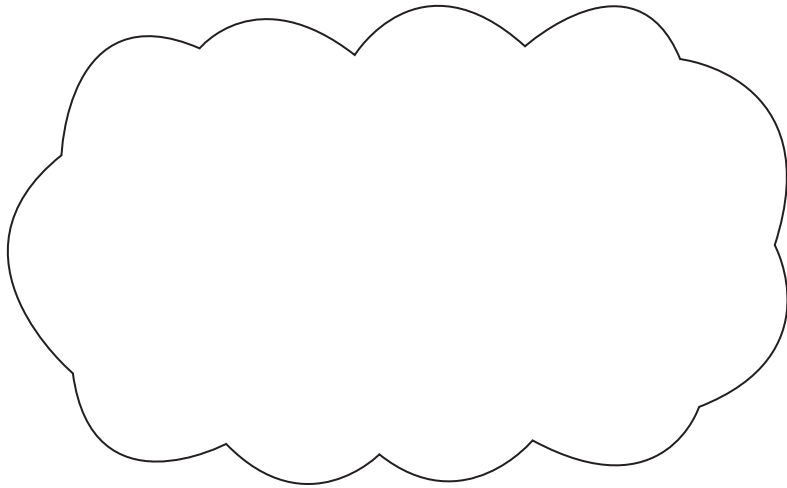
The smallest number Mark could be thinking of is **45**.

1 mark

	Requirement	Mark	Additional guidance
Q1	£20	1	
Q2	12	1	
Q3	Award ONE mark for both statements completed correctly: The largest number Mark could be thinking of is 54 . The smallest number Mark could be thinking of is 45 .	1	

Q1 Eden says, "Multiplication is commutative."

Explain why Eden is correct. Remember to give an example.



1 mark

Q2 Handwriting pens come in packs of 7.
Mrs Lloyd buys 8 packs for her class of 22 children.

How many pens does she have?

1 mark

Q3 Amy has these four cards.

21 33 43 53

She chooses two cards and adds them together.

She says, "My answer rounds to 80."

Which two numbers does Amy choose?

 and

1 mark

Q1 Eden says, “Multiplication is commutative.”

Explain why Eden is correct. Remember to give an example.

*See mark scheme
for examples*

1 mark

Q2 Handwriting pens come in packs of 7.
Mrs Lloyd buys 8 packs for her class
of 22 children.

How many pens does she have?

56 pens

1 mark

Q3 Amy has these four cards.

21 33 43 53

She chooses two cards and adds them
together.

She says, “My answer rounds to 80.”

Which two numbers does Amy choose?

33 and **43**

1 mark

	Requirement	Mark	Additional guidance
Q1	<p>Answer that explains or shows that the numbers in a multiplication can be ‘switched’ around but the calculation remains the same AND which includes an example, such as:</p> <p>5×6 is the same as 6×5,</p> <p>OR that the numbers in a multiplication can be ‘switched’ around but the answer remains the same, such as:</p> <p>6×7 is the same as 7×6.</p>	1	
Q2	56	1	
Q3	33 and 43	1	

What are examiners looking for?

Q3

Amy has these four cards.



She chooses two cards and adds them together.

She says, "My answer rounds to 80."

Which two numbers does Amy choose?



1 markWhy are we asking this question?

This question assesses children's understanding of rounding numbers.

What common errors do we expect to see?

Children give the answers 33 and 53. This indicates that children believe that any number that has 8 tens rounds to 80.

Children give the answer 21 and 53. This indicates that children believe that they can round any number up to the nearest ten; they don't recognise that the digit in the ones column has to be 5, 6, 7, 8 or 9 to round up to the nearest ten.

How to encourage children to solve this question

First, encourage children to consider the rules they know for rounding, and specifically how these apply to rounding numbers to the nearest 10. Children should recall that they need to look at the place value that is one smaller than the number being rounded to (i.e. look at the **ones** if we are rounding to the nearest **tens**) to consider if the number is rounded up or down. They should also recall that when rounding to the nearest ten, if the value of the tens place is 5 **or more** they round up, whereas if it is **less than** 5 they round the number down. They should therefore be able to state that to round to 80, the number needs to be equal to or greater than 75 but less than or equal to 84.

They should then consider the pairs of numbers in the question, working systematically until they find an answer that is between the two values they have identified. For example, they may at first go with $53 + 33$ and then realise that this number is two more than 84, and therefore wouldn't round to 80. They may therefore reason that 33 must be one of the numbers (as $53 + 21$ is clearly too low at 74) and try $33 + 43$, giving the answer of 76, which they know will round up to 80.

Q1

Mia has 84 building blocks.
She builds a house using 43 blocks.
She builds a tower using 12 blocks.

How many blocks does she have left over?



2 marks

Q2

Lily is describing two different times tables.
Times Table a) “As you count up in this times table, the ones value decreases by one and the tens value increases by one.”
Times Table b) “All numbers in this times table are even. They are all a multiple of 4 and 8.”

Which times tables is Lily describing?

a

Times table a) is the times table.

1 mark

b

Times table b) is the times table.

1 mark

Q3



Measure the perimeter of this shape.

1 mark

Q1

Mia has 84 building blocks.
She builds a house using 43 blocks.
She builds a tower using 12 blocks.

How many blocks does she have left over?



29 blocks

2 marks

Q2

Lily is describing two different times tables.
Times Table a) “As you count up in this times table, the ones value decreases by one and the tens value increases by one.”
Times Table b) “All numbers in this times table are even. They are all a multiple of 4 and 8.”

Which times tables is Lily describing?

a

Times table a) is the 9 times table.

1 mark

b

Times table b) is the 8 times table.

1 mark

Q3



Measure the perimeter of this shape.

16 cm

1 mark

	Requirement	Mark	Additional guidance
Q1	29 blocks Award ONE mark for a complete method, with one arithmetic error, for example: $43 + 12 = 55$ $84 - 55 = \text{wrong answer.}$	2	
Q2a	9	1	
Q2b	8	1	
Q3	16cm	1	



THIRD SPACE LEARNING

Specialist 1-to-1 maths interventions
and curriculum resources

Rapid Reasoning


Do you have a group of pupils who need a boost in maths this term?

Each pupil could receive a personalised lesson every week from our specialist 1-to-1 maths tutors.

- Raise attainment
- Plug any gaps or misconceptions
- Boost confidence

Speak to us:

 thirdspacelearning.com

 0203 771 0095

 hello@thirdspacelearning.com