



THIRD SPACE LEARNING

Specialist 1-to-1 maths interventions
and curriculum resources

Rapid Reasoning

Year 4 | Weeks 13–18



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Rapid Reasoning

Year 4 | Week 17

This week, the questions within *Rapid Reasoning* focus on fractions and proportionality for the first time this term.

This week, questions will focus on children recognising and showing, using diagrams, and families of common equivalent fractions.

As with previous weeks, other content from Year 4 that the children have met in previous weeks of *Rapid Reasoning*, along with Year 3 objectives, will also feature this week.

Q1

Louise has a £5 note.
She spends £1.45.

How much change does she get?

£

1 mark

Q2

Fill in the missing digits in this calculation.

$$\begin{array}{r} 56\boxed{}7 \\ - \boxed{}468 \\ \hline 213\boxed{} \end{array}$$

2 marks

Q3

Yvan says, “ $\frac{3}{4}$ is equivalent to $\frac{6}{8}$.”
He is correct.

Draw a diagram below to show why
Yvan is correct.

1 mark

Q1

Louise has a £5 note.
She spends £1.45.

How much change does she get?

£ **3.55**

1 mark

Q2

Fill in the missing digits in this calculation.

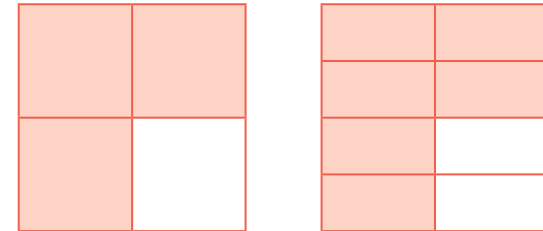
$$\begin{array}{r} 56\boxed{0}7 \\ - \boxed{3}468 \\ \hline 213\boxed{9} \end{array}$$

2 marks

Q3

Yvan says, “ $\frac{3}{4}$ is equivalent to $\frac{6}{8}$.”
He is correct.

Draw a diagram below to show why Yvan is correct.



1 mark

	Requirement	Mark	Additional guidance
Q1	£3.55	1	Also accept £3.55p
Q2	Award TWO marks for all three digits completed correctly. $ \begin{array}{r} 5 \quad 6 \quad \boxed{0} \quad 7 \\ - \boxed{3} \quad 4 \quad 6 \quad 8 \\ \hline 2 \quad 1 \quad 3 \quad \boxed{9} \end{array} $ Award ONE mark for two digits added correctly.	2	
Q3	Any two diagrams that compare $\frac{3}{4}$ to $\frac{6}{8}$ using the same shape, showing that they are equivalent. For example, a square split into $\frac{1}{4}$ and a similar square split into $\frac{1}{8}$ with $\frac{3}{4}$ and $\frac{6}{8}$ shaded.	1	

Q1

How many **pairs** of parallel lines does a square have?

1 mark

Q2

Eden had some gummy sweets.

For every 15 sweets she ate, she gave 10 to her brother.

After she gave the last 10 sweets to her brother, she had eaten 75 sweets.

How many sweets did Eden have at the start?

sweets

2 marks

Q3

Complete these families of equivalent fractions.

a

$$\frac{\boxed{}}{3} = \frac{6}{9} = \frac{\boxed{}}{14} = \frac{14}{\boxed{}}$$

1 mark

b

$$\frac{3}{\boxed{}} = \frac{9}{\boxed{}} = \frac{12}{20} = \frac{\boxed{}}{45}$$

1 mark

Q1

How many pairs of parallel lines does a square have?

2

1 mark

Q2

Eden had some gummy sweets.

For every 15 sweets she ate, she gave 10 to her brother.

After she gave the last 10 sweets to her brother, she had eaten 75 sweets.

How many sweets did Eden have at the start?

125 sweets

2 marks

Q3

Complete these families of equivalent fractions.

a

$$\frac{2}{3} = \frac{6}{9} = \frac{10}{14} = \frac{14}{21}$$

1 mark

b

$$\frac{3}{5} = \frac{9}{15} = \frac{12}{20} = \frac{27}{45}$$

1 mark

	Requirement	Mark	Additional guidance
Q1	2	1	
Q2	Award TWO marks for the correct answer of 125. Award ONE mark for evidence of a complete method, with up to one arithmetic error, for example: $75 \div 15 = 5$ $5 \times 10 = 50$ $75 + 50 = \text{wrong answer.}$	2	An answer must be arrived at for the award of ONE mark.
Q3a	$\frac{\boxed{2}}{3} = \frac{6}{9} = \frac{\boxed{10}}{14} = \frac{14}{\boxed{21}}$	1	
Q3b	$\frac{3}{\boxed{5}} = \frac{9}{\boxed{15}} = \frac{12}{20} = \frac{\boxed{27}}{45}$	1	

Q1

This year is a **leap year**.

There have been 167 days so far this year.

How many days are **left** this year?

 days

1 mark

Q2

Complete this statement so it is correct.

 $\times 11 = 165$

1 mark

Q3

Complete these boxes to make this calculation correct:

$$\frac{3}{\boxed{}} + \frac{\boxed{}}{15} = \frac{12}{15}$$

1 mark

Q1

This year is a **leap year**.

There have been 167 days so far this year.

How many days are **left** this year?**199** days

1 mark

Q2

Complete this statement so it is correct.

15 $\times 11 = 165$

1 mark

Q3

Complete these boxes to make this calculation correct:

$$\begin{array}{r} 3 \\ \hline \end{array} + \begin{array}{r} \boxed{9} \\ \hline 15 \end{array} = \begin{array}{r} 12 \\ \hline 15 \end{array}$$

1 mark

	Requirement	Mark	Additional guidance
Q1	199 days	1	
Q2	15	1	
Q3	$\begin{array}{r} 3 \\ \hline 15 \end{array} + \begin{array}{r} 9 \\ \hline 15 \end{array} = \begin{array}{r} 12 \\ \hline 15 \end{array}$	1	Both digits need to be completed correctly for the award of the mark.

Q1

Mikey has completed this calculation.

$$\begin{array}{r} 24,322 \\ - 11,323 \\ \hline 12,999 \end{array}$$

Write the addition calculation Mikey could use to check his answer.

[illegible]

1 mark

Q2

Fill in the boxes to complete this multiplication table

x			8
7	42		
		88	64
	72		

2 marks

Q3

Noah says, “ $\frac{2}{3}$ is equivalent to $\frac{4}{6}$.”

He is correct.

Draw a diagram below to show why Noah is correct.

1 mark

Q1 Mikey has completed this calculation.

$$\begin{array}{r} 24,322 \\ - 11,323 \\ \hline 12,999 \end{array}$$

Write the addition calculation Mikey could use to check his answer.

$$\begin{array}{r} 11,323 \\ + 12,999 \\ \hline 24,322 \end{array}$$

1 mark

Q2 Fill in the boxes to complete this multiplication table

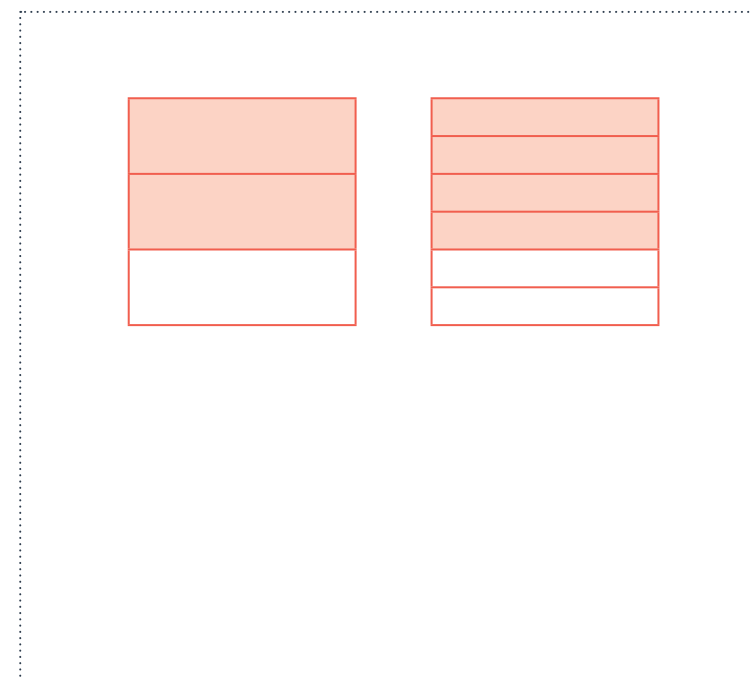
x	6	11	8
7	42	77	56
8	48	88	64
12	72	121	96

2 marks

Q3 Noah says, “ $\frac{2}{3}$ is equivalent to $\frac{4}{6}$.”

He is correct.

Draw a diagram below to show why Noah is correct.



1 mark

	Requirement	Mark	Additional guidance																
Q1	$11,323 + 12,999 = 24,322$ OR $12,999 + 11,323 = 24,322$	1	Also accept $11,323 + 12,999$ OR $12,999 + 11,323$																
Q2	Award TWO marks for all six boxes completed correctly. <table border="1"> <tbody> <tr> <td>x</td><td>6</td><td>11</td><td>8</td></tr> <tr> <td>7</td><td>42</td><td>77</td><td>56</td></tr> <tr> <td>8</td><td>48</td><td>88</td><td>64</td></tr> <tr> <td>12</td><td>72</td><td>121</td><td>96</td></tr> </tbody> </table> Award ONE mark for four or more boxes completed correctly.	x	6	11	8	7	42	77	56	8	48	88	64	12	72	121	96	2	
x	6	11	8																
7	42	77	56																
8	48	88	64																
12	72	121	96																
Q3	Any two diagrams that compare $\frac{2}{3}$ to $\frac{4}{6}$ using the same shape, showing that they are equivalent. For example, a rectangle split into $\frac{1}{3}$s and a similar rectangle split into $\frac{1}{6}$ with $\frac{2}{3}$ and $\frac{4}{6}$ shaded.	1																	

Q1

One battery weighs the same as 72 paperclips.

One pencil sharpener weighs the same as 18 paperclips.

How many pencil sharpeners weigh the same as one battery?

1 mark

Q2

Write in the missing digit to make this calculation correct.

$\times 6 = 582$

1 mark

Q3

Complete this table.

	Rounded to the nearest 100	Rounded to the nearest 1,000
9,765		
11,832		
19,392		

2 marks

Q1

One battery weighs the same as 72 paperclips.

One pencil sharpener weighs the same as 18 paperclips.

How many pencil sharpeners weigh the same as one battery?

4

pencil sharpeners

1 mark

Q2

Write in the missing digit to make this calculation correct.

9

$7 \times 6 = 582$

1 mark

Q3

Complete this table.

	Rounded to the nearest 100	Rounded to the nearest 1,000
9,765	9,800	10,000
11,832	11,800	12,000
19,392	19,400	19,000

2 marks

	Requirement			Mark	Additional guidance												
Q1	4			1													
Q2	9			1													
Q3	<table><tr><td></td><td>Rounded to the nearest 100</td><td>Rounded to the nearest 1,000</td></tr><tr><td>9,765</td><td>9,800</td><td>10,000</td></tr><tr><td>11,832</td><td>11,800</td><td>12,000</td></tr><tr><td>19,392</td><td>19,400</td><td>19,000</td></tr></table> Award TWO marks for all three correctly completed. Award ONE mark for two correctly completed.				Rounded to the nearest 100	Rounded to the nearest 1,000	9,765	9,800	10,000	11,832	11,800	12,000	19,392	19,400	19,000	2	Commas not required for the award of marks.
	Rounded to the nearest 100	Rounded to the nearest 1,000															
9,765	9,800	10,000															
11,832	11,800	12,000															
19,392	19,400	19,000															

What are examiners looking for?

Q3

Complete this table.

	Rounded to the nearest 100	Rounded to the nearest 1,000
9,765	9,800	10,000
11,832	11,800	12,000
19,392	19,400	19,000

2 marks

Why are we asking this question?

This question is designed to assess children's ability to round numbers over 1,000 to the nearest hundred or thousand.

What common errors do we expect to see?

Some children may round each number by keeping the hundreds or thousands digit and replacing all digits less than this with zeros, no matter what its digits are. This will have the effect of rounding each number down the previous 100 or 1,000, rather than rounding to the **nearest** 100 or 1,000. Children who do this will get two out of the six numbers correct, but this will not be because they understand what the problem is asking.

How to encourage children to solve this question

Children can sketch number lines with the two 100s (or 1,000s) either side of the number in question. Encourage them to consider questions such as: “What are the two 100s either side of 9,765? Where would you place 9,785 on the number line? Which end is it nearest to? How do you know?”

For example:



Children may find it useful to think about the value of halfway on their number lines and where the number in the table belongs in comparison to this point. “Which digit do you need to look at to know where the number belongs?”



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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
-

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