

White

**Rose
Maths**

Year 6 - Autumn - Block 3

Fractions

Find the total of the fractions.

Give your answer in its simplest form.

$$\frac{5}{9} + \frac{1}{9} = \quad \frac{5}{9} + \frac{3}{9} = \quad \frac{5}{9} + \frac{7}{9} =$$

Do all the answers need simplifying?
Explain why.

Tommy is simplifying $4 \frac{12}{16}$

$$4 \frac{12}{16} = 4 \frac{3}{4}$$

Explain Tommy's mistake.

Sort the fractions into the table.

Simplifies to $\frac{1}{2}$	Simplifies to $\frac{1}{3}$	Simplifies to $\frac{1}{4}$

$\frac{5}{15}$	$\frac{2}{4}$	$\frac{4}{16}$	$\frac{8}{16}$
$\frac{2}{8}$	$\frac{3}{9}$	$\frac{6}{12}$	$\frac{5}{10}$

Can you see any patterns between the numbers in each column?

What is the relationship between the numerators and denominators?

Can you add three more fractions to each column?

When a fraction is equivalent to _____,
the numerator is _____ the denominator.

Rosie is counting backwards in fifths.

She starts at $3\frac{2}{5}$ and counts back nine fifths.

What number does Rosie end on?

Show this on a number line.



Plot the sequences on a number line.

$$3\frac{1}{2}, 4, 4\frac{1}{2}, 5, 5\frac{1}{2}, 6$$

$$\frac{13}{4}, \frac{15}{4}, \frac{17}{4}, \frac{19}{4}, \frac{21}{4}, \frac{23}{4}$$

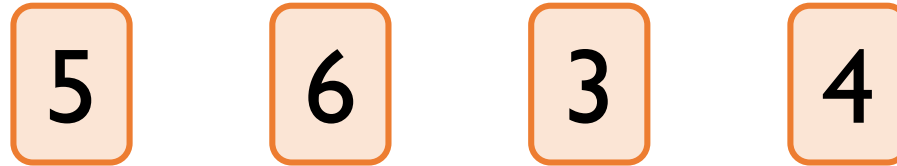
$$5\frac{5}{8}, 5\frac{1}{8}, 4\frac{5}{8}, 4\frac{1}{8}, 3\frac{5}{8}, 3\frac{1}{8}$$

$$3\frac{1}{8}, 3\frac{3}{8}, 3\frac{5}{8}, 3\frac{7}{8}, 4\frac{1}{8}, 4\frac{3}{8}$$

Which sequence is the odd one out? Explain why.

Can you think of a reason why each of the sequences could be the odd one out?

Use the digit cards to complete the statements.



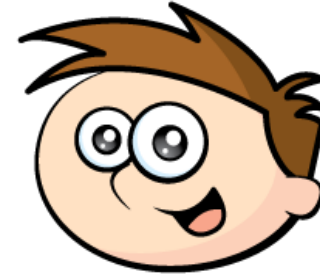
$$\frac{\square}{4} > \frac{6}{\square} \qquad \frac{\square}{4} < \frac{6}{\square}$$

Find three examples of ways you could complete the statement.

$$\frac{\square}{\square} < \frac{\square}{\square}$$

Can one of your ways include an improper fraction?

Teddy is comparing $\frac{3}{8}$ and $\frac{5}{12}$



To find the lowest common multiple, I will multiply 8 and 12 together.

$$8 \times 12 = 96$$

I will use a common denominator of 96

Is Teddy correct?
Explain why.

Mo is comparing the fractions $\frac{3}{7}$ and $\frac{6}{11}$

He wants to find a common denominator.

Explain whether you think this is the most effective strategy.

Two different pieces of wood have had a fraction chopped off.

Here are the pieces now, with the fraction that is left.



$$\frac{5}{6}$$



$$\frac{3}{4}$$

Which piece of wood was the longest to begin with?

Explain your answer.

Can you explain your method?

Use the same digit in both boxes to complete the calculation.

Is there more than one way to do it?

$$\begin{array}{r}
 \boxed{} \\
 \hline
 \boxed{20}
 \end{array}
 +
 \begin{array}{r}
 \boxed{1} \\
 \hline
 \boxed{}
 \end{array}
 =
 \begin{array}{r}
 \boxed{9} \\
 \hline
 \boxed{20}
 \end{array}$$

Dexter subtracted $\frac{3}{5}$ from a fraction and his answer was $\frac{8}{45}$

What fraction did he subtract $\frac{3}{5}$ from?

Give your answer in its simplest form.

Alex is adding fractions.

$$\frac{3}{5} + \frac{1}{15} = \frac{4}{20} = \frac{1}{5}$$

Do you agree with her?

Explain your answer.

A car is travelling from Halifax to Brighton.

In the morning, it completes $\frac{2}{3}$ of the journey.

In the afternoon, it completes $\frac{1}{5}$ of the journey.

What fraction of the journey has been travelled altogether?

What fraction of the journey is left to travel?



If the journey is 270 miles, how far did the car travel in the morning?

How far did the car travel in the afternoon?

How far does the car have left to travel?

Mr and Mrs Rose are knitting scarves.

Mr Rose's scarf is $\frac{5}{9}$ m long.

Mrs Rose's scarf is $\frac{1}{5}$ m longer than Mr Rose's scarf.

How long is Mrs Rose's scarf?

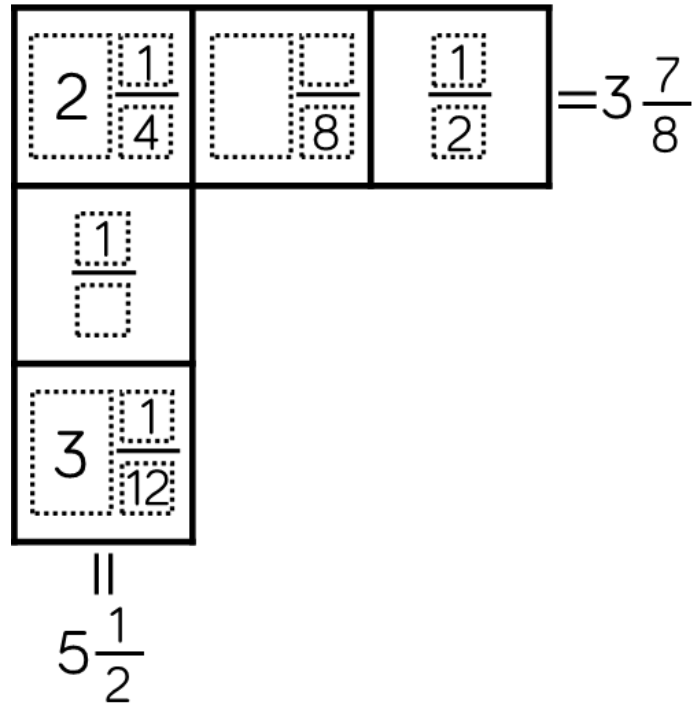
How long are both the scarves altogether?

Fill in the boxes to make the calculation correct.

$$\begin{array}{|c|} \hline \square \\ \hline 10 \\ \hline \end{array} + \frac{\square}{10} = \frac{\begin{array}{|c|} \hline 3 \\ \hline \end{array}}{\begin{array}{|c|} \hline \square \\ \hline \end{array}} + \frac{\square}{10}$$

Each row and column adds up to make the total at the end.

Use this information to complete the diagram.



Dora is baking muffins.

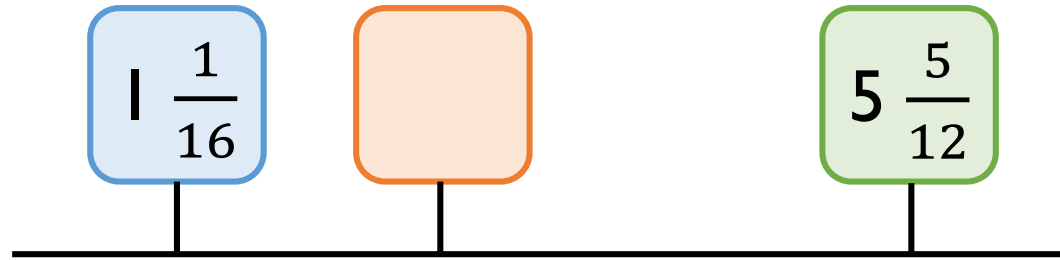
She uses $2\frac{1}{2}$ kg of flour, $1\frac{3}{5}$ kg of sugar and $1\frac{1}{4}$ kg of butter.

How much flour, sugar and butter does she use altogether?

How much more flour does she use than butter?

How much less butter does she use than sugar?

A blue, orange and green box are on a number line.

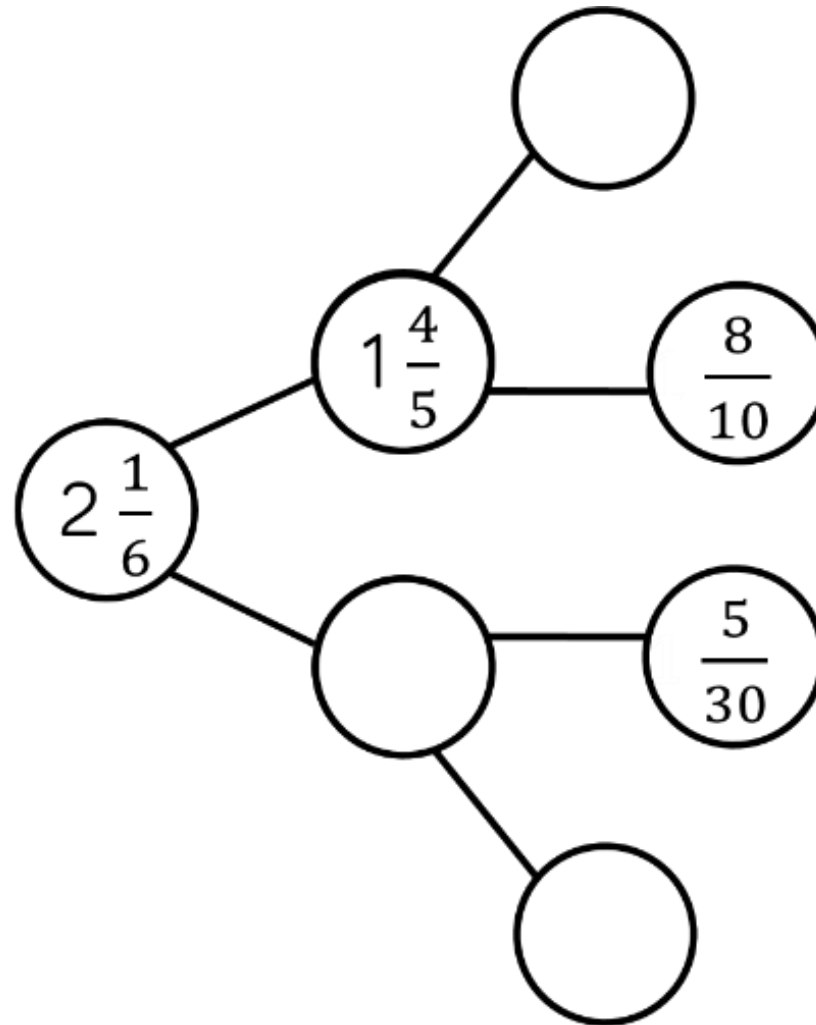


The number in the green box is $3 \frac{2}{3}$ more than the orange box.

The number in the orange box is: $\square \frac{\square}{\square}$

The number in the orange box is $\frac{\square}{\square}$ greater than the number in the blue box.

Complete the part-whole model.



Jack is calculating $4\frac{2}{7} - 2\frac{6}{7}$

He adds $\frac{1}{7}$ to both numbers.



$$4\frac{2}{7} - 2\frac{6}{7} = 4\frac{3}{7} - 3$$

so the answer is $1\frac{3}{7}$

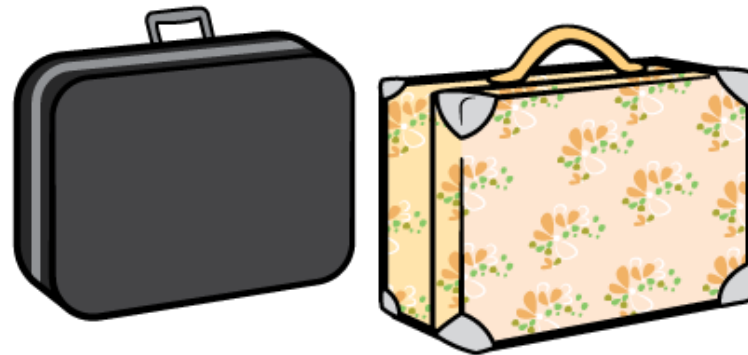
Explain why Jack is correct.

The mass of Annie's suitcase is $29\frac{1}{2}$ kg.

Teddy's suitcase is $2\frac{1}{5}$ kg lighter than Annie's.

How much does Teddy's suitcase weigh?

How much do the suitcases weigh altogether?



There is a weight allowance of 32 kg per suitcase.

How much below the weight allowance are Annie and Teddy?

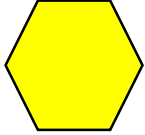
Find the value of the 

$$\text{heart} + 3\frac{4}{9} = 6\frac{1}{3}$$

$$8\frac{1}{10} - \text{heart} = \text{sun}$$

There are 9 lamp posts on a road. There is $4\frac{3}{8}$ of a metre between each lamp post.

What is the distance between the first and last lamp post?

Use pattern blocks, if  is equal to 1 whole, work out what fraction the other shapes represent.

Use this to calculate the multiplications.

Give your answers in their simplest form.

$$\begin{array}{c} \triangle \\ \times 5 = \end{array}$$

$$\begin{array}{c} \text{parallelogram} \\ \times 5 = \end{array}$$

$$\begin{array}{c} \text{trapezium} \\ \times 5 = \end{array}$$

Eva and Amir both work on a homework project.

Eva



I spent $4\frac{1}{4}$ hours a week
for 4 weeks doing my
project.

I spent $2\frac{3}{4}$ hours a week
for 5 weeks doing my
project.



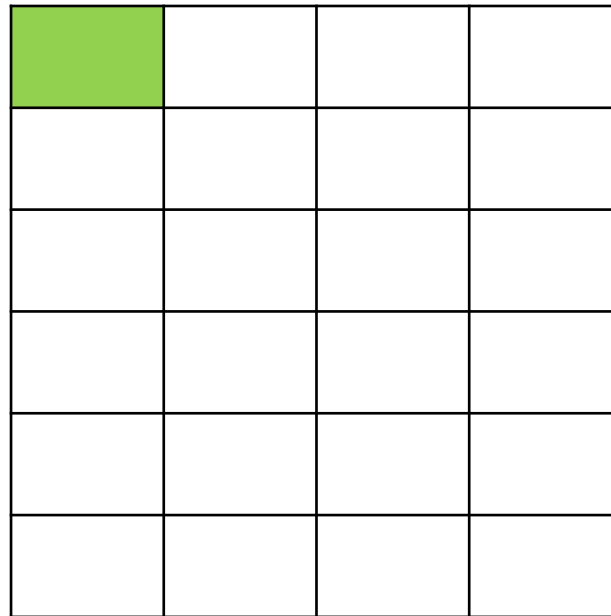
Amir

Who spent the most time on their project?

Explain your reasoning.

The shaded square in the grid below is the answer to a multiplying fractions question.

What was the question?

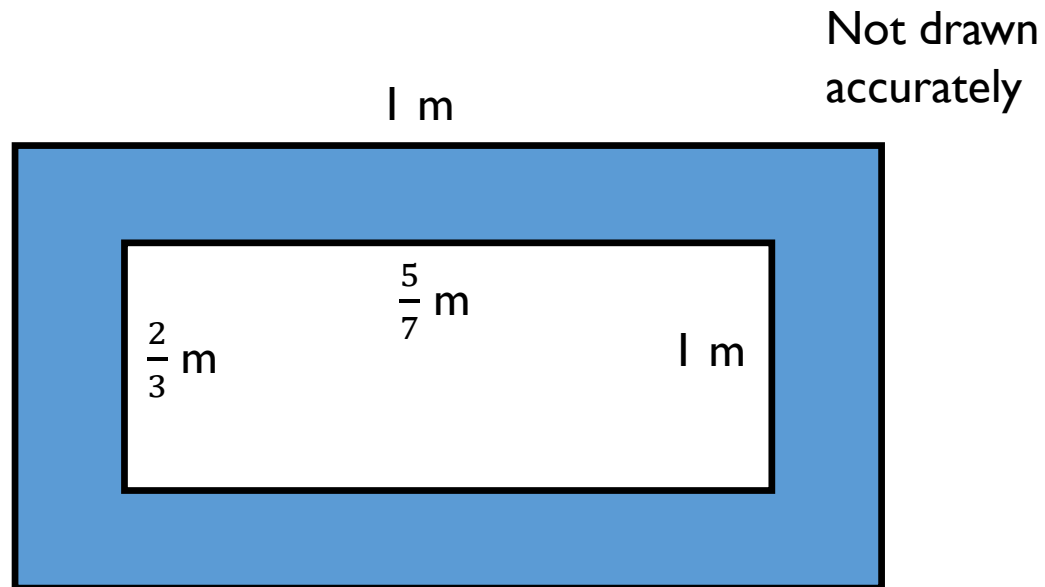


How many ways can you complete the missing digits?

$$\begin{array}{c}
 \text{[Purple splat]} \\
 \hline
 \text{[Brown splat]}
 \end{array}
 \times
 \begin{array}{c}
 3 \\
 \hline
 \text{[Blue splat]}
 \end{array}
 =
 \begin{array}{c}
 6 \\
 \hline
 12
 \end{array}$$

$$=
 \begin{array}{c}
 \text{[Green splat]} \\
 \hline
 2
 \end{array}$$

Find the area of the shaded part of the shape.



Alex says,



$\frac{1}{4} \times \frac{1}{2}$ is the same as $\frac{1}{2}$ of a
quarter.

Do you agree?
Explain why.

Tommy says,



Dividing by 2 is the same
as finding half of a number

so $\frac{4}{11} \div 2$ is the same as

$$\frac{1}{2} \times \frac{4}{11}$$

Do you agree?
Explain why.

Match the equivalent calculations.

$$\frac{1}{4} \times \frac{12}{13}$$

$$\frac{1}{6} \times \frac{12}{13}$$

$$\frac{1}{2} \times \frac{12}{13}$$

$$\frac{1}{3} \times \frac{12}{13}$$

$$\frac{12}{13} \div 2$$

$$\frac{12}{13} \div 6$$

$$\frac{12}{13} \div 4$$

$$\frac{12}{13} \div 3$$

Complete the missing integers.

$$\frac{15}{16} \div \boxed{} = \frac{5}{16}$$

$$\frac{15}{16} \div \boxed{} = \frac{3}{16}$$

$$\frac{20}{23} \div \boxed{} = \frac{4}{23}$$

$$\frac{20}{23} \div \boxed{} = \frac{5}{23}$$

Rosie walks for $\frac{3}{4}$ of an hour over 3 days.

She walks for the same amount of time each day.

How many minutes does Rosie walk each day?

Alex says,



I can only divide a fraction
by an integer if the
numerator is a multiple of
the divisor.

Do you agree?
Explain why.

Calculate the missing fractions and integers.

$$\square \div 4 = \frac{7}{36}$$

$$\frac{3}{20} \div \square = \frac{3}{80}$$

$$\square \div \square = \frac{2}{5}$$

Is there more than one possibility?

Add two sets of brackets to make the following calculation correct:

$$\frac{1}{2} + \frac{1}{4} \times 8 + \frac{1}{6} \div 3 = 6 \frac{1}{18}$$

Explain where the brackets go and why.
Did you find any difficulties?

Match each calculation to the correct answer.

$$\left(\frac{2}{3} + \frac{2}{9}\right) \div 4$$

$$\frac{5}{9}$$

$$\frac{2}{3} - \frac{1}{3} \div 3$$

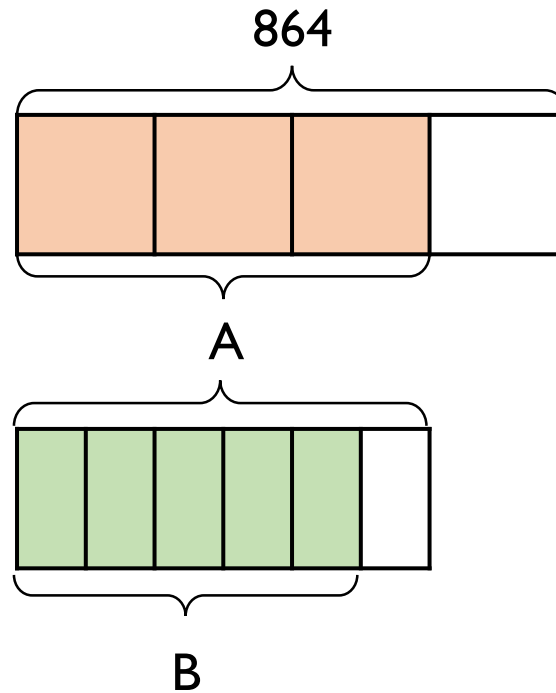
$$\frac{2}{9}$$

$$\frac{1}{3} \times 2 - \left(1\frac{1}{9} \div 2\right)$$

$$\frac{1}{9}$$

What is the value of A?

What is the value of B?



Two fashion designers receive $\frac{3}{8}$ of 208 metres of material.

One of them says:



We each
receive 26 m

Is she correct?
Explain your reasoning.

Calculate the missing digits.

$$\frac{3}{8} \text{ of } 40 = \frac{?}{10} \text{ of } 150$$

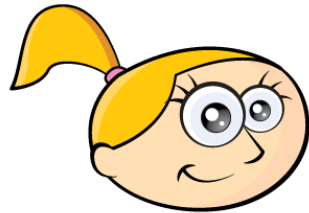
$$\frac{1}{5} \text{ of } 315 = \frac{?}{8} \text{ of } 72$$

Eva lit a candle while she had a bath.

After her bath, $\frac{2}{5}$ of the candle was left.

It measured 13 cm.

Eva says:

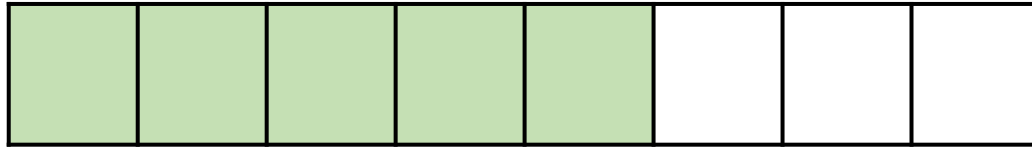


Before my bath the
candle measured 33 cm

Is she correct?

Explain your reasoning.

Write a problem which this bar model could represent.

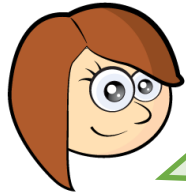


Rosie and Jack are making juice.

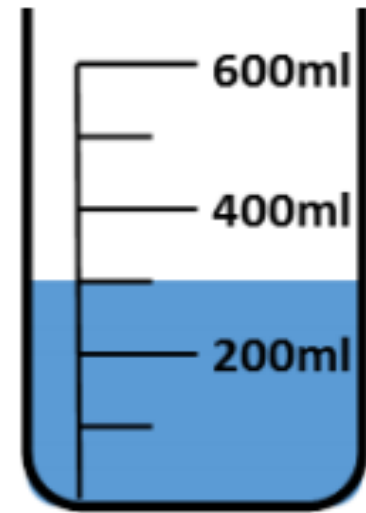
They use $\frac{6}{7}$ of the water in a jug and are left with this amount of water:



To work out how much we had originally, we should divide 300 by 6 then multiply by 7



No, we know that 300ml is $\frac{1}{7}$ so we need to multiply it by 7



Who is correct?

Explain your reasoning.