


Week 7 – Challenge answers

Monday

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.

$$\triangle \times 5 =$$

$$\text{parallelogram} \times 5 =$$

$$\text{trapezoid} \times 5 =$$

$$8 \times 4\frac{3}{8} = 8 \times \frac{35}{8} = \frac{280}{8} = 35$$

The distance between the first and last lamp post is 35 metres.

$$\triangle \times 5 = \frac{5}{6}$$

$$\text{parallelogram} \times 5 = \frac{5}{3} = 1\frac{2}{3}$$

$$\text{trapezoid} \times 5 = \frac{5}{2} = 2\frac{1}{2}$$

Eva and Amir both work on a homework project.



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.



Who spent the most time on their project?

Explain your reasoning.

$$4 \times 4\frac{1}{4} = \frac{68}{4}$$

$$= 17 \text{ hours}$$

$$5 \times 2\frac{3}{4} = \frac{55}{4}$$

$$= 13\frac{3}{4} \text{ hours}$$

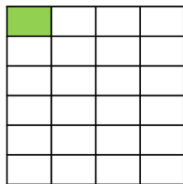
Eva spent $3\frac{1}{4}$ hours longer on her project than Amir did.

24

Tuesday

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?

$$\frac{\text{purple spider}}{\text{brown spider}} \times \frac{3}{\text{blue spider}} = \frac{6}{\text{green spider}}$$

$$\frac{\text{purple spider}}{\text{brown spider}} \times \frac{3}{\text{blue spider}} = \frac{6}{\text{green spider}}$$

$$\frac{1}{6} \times \frac{1}{4}$$

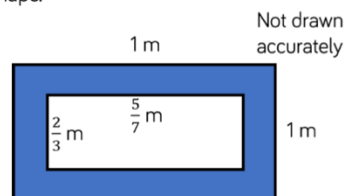
Possible answers:

$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$$

$$\frac{2}{2} \times \frac{3}{6} = \frac{6}{12} = \frac{1}{2}$$

Children could also use improper fractions.

Find the area of the shaded part of the shape.



$$1 \times 1 = 1$$

$$\frac{2}{3} \times \frac{5}{7} = \frac{10}{21}$$

$$1 - \frac{10}{21} = \frac{11}{21}$$

The shaded area is $\frac{11}{21} \text{ m}^2$.

Alex says,



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

Do you agree?

Explain why.

Alex is correct.

Multiplication is commutative so


$\frac{1}{4} \times \frac{1}{2}$ is the same

as $\frac{1}{2}$ of a quarter or

$\frac{1}{4}$ of a half.

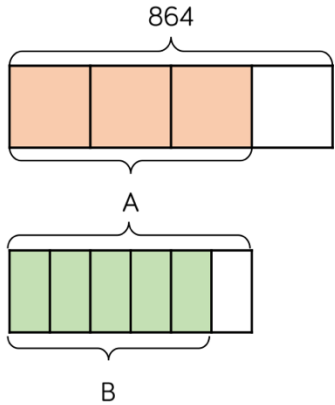
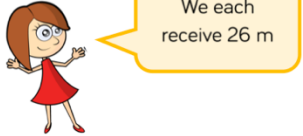
25

Wednesday

<p>Tommy says,</p>  <p>Dividing by 2 is the same as finding half of a number so $\frac{4}{11} \div 2$ is the same as $\frac{1}{2} \times \frac{4}{11}$</p> <p>Do you agree? Explain why.</p>	<p>Tommy is correct. It may help children to understand this by reinforcing that $\frac{1}{2} \times \frac{4}{11}$ is the same as $\frac{1}{2}$ of $\frac{4}{11}$</p>	<p>Complete the missing integers.</p> $\frac{15}{16} \div \square = \frac{5}{16}$ $\frac{15}{16} \div \square = \frac{3}{16}$ $\frac{20}{23} \div \square = \frac{4}{23}$ $\frac{20}{23} \div \square = \frac{5}{23}$	<p>3 5 5 4</p>
<p>Match the equivalent calculations.</p> <div>$\frac{1}{4} \times \frac{12}{13}$</div> <div>$\frac{1}{6} \times \frac{12}{13}$</div> <div>$\frac{1}{2} \times \frac{12}{13}$</div> <div>$\frac{1}{3} \times \frac{12}{13}$</div> <div>$\frac{12}{13} \div 2$</div> <div>$\frac{12}{13} \div 6$</div> <div>$\frac{12}{13} \div 4$</div> <div>$\frac{12}{13} \div 3$</div>	$\frac{1}{4} \times \frac{12}{13} = \frac{12}{13} \div 4$ $\frac{1}{6} \times \frac{12}{13} = \frac{12}{13} \div 6$ $\frac{1}{2} \times \frac{12}{13} = \frac{12}{13} \div 2$ $\frac{1}{3} \times \frac{12}{13} = \frac{12}{13} \div 3$	<p>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?</p>	<p>Rosie walks for $\frac{1}{4}$ of an hour each day. She walks for 15 minutes each day.</p>

22

Thursday

<p>What is the value of A? What is the value of B?</p> 	<p>A = 648 B = 540</p>	<p>Two fashion designers receive $\frac{3}{8}$ of 208 metres of material.</p> <p>One of them says:</p>  <p>Is she correct? Explain your reasoning.</p>	<p>She is incorrect because 26 is only one eighth of 208. She needs to multiply her answer by 3 so that they each get 78 m each.</p>
		<p>Calculate the missing digits.</p> $\frac{3}{8} \text{ of } 40 = \frac{?}{10} \text{ of } 150$ $\frac{1}{5} \text{ of } 315 = \frac{?}{8} \text{ of } 72$	<p>1 7</p>

24

Friday Challenge

Match each calculation to the correct answer.

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

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

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

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

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

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

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

$$\frac{2}{3} - \frac{1}{3} \div 3 = \frac{5}{9}$$

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

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.

Alex is wrong, we can divide any fraction by an integer.

Calculate the missing fractions and integers.

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

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

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

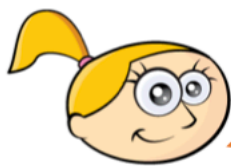
Is there more than one possibility?

$$\frac{7}{9}$$

$$4$$

There are many possibilities in this last question. Children could look for patterns between the fractions and integers.

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:



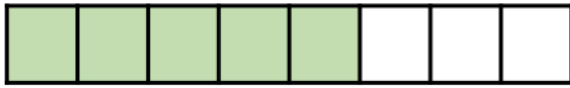
Before my bath
the candle
measured 33 cm

Is she correct?
Explain your reasoning.

She is incorrect.
 $13 \div 2 = 6.5$
 $6.5 \times 5 = 32.5\text{cm}$

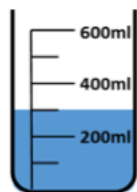
She either didn't
halve correctly or
didn't multiply
correctly

Write a problem which this bar model could represent.



Many possibilities.
 $\frac{5}{8}$ of children have blue eyes. 15 children do not have blue eyes. How many children are there altogether?

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.

Rosie is correct. Jack would only be correct if $\frac{6}{7}$ was **remaining** but $\frac{6}{7}$ is what was used. Rosie recognised that $\frac{1}{7}$ is left in the jug therefore multiplied it by 7 to correctly find the whole.