Maths Fractions Week 5 Extra Challenge

Monday

1) Fill in the missing digits to complete the calculations. Give all fractions in their simplest form.

a) $2\frac{\square}{5} - \frac{7}{10} = 1\frac{9}{10}$

b) $4\frac{1}{2} - \frac{\square}{4} = 3\frac{1}{\square}$

c) $\frac{5}{6} + \square\frac{\square}{\square} = 3\frac{1}{6}$

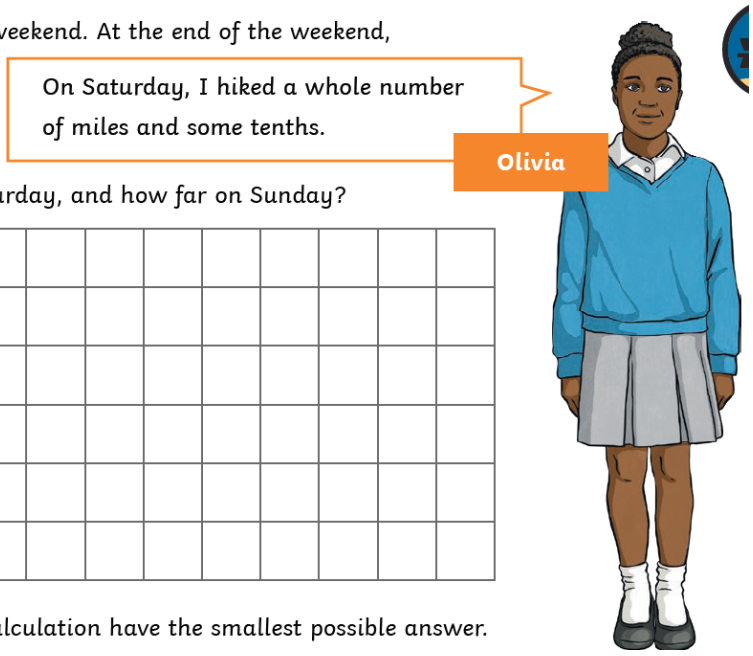
2) Find all the possible ways to complete this calculation: $6\frac{1}{12} - \frac{1}{\square} = 5\frac{\square}{12}$

3) Write a word problem that involves subtracting a proper fraction from a mixed number for your partner to solve.

- Make sure that your subtraction breaks the whole.
- Use denominators that are different but are in the same times table.

Tuesday

1) Olivia went on a 10-mile hike over the weekend. At the end of the weekend, she had $4\frac{2}{4}$ miles left to reach her goal.



How far could Olivia have hiked on Saturday, and how far on Sunday?

2) Use each digit card once to make this calculation have the smallest possible answer.

3	1

$3\frac{\square}{8} - 2\frac{\square}{4} =$

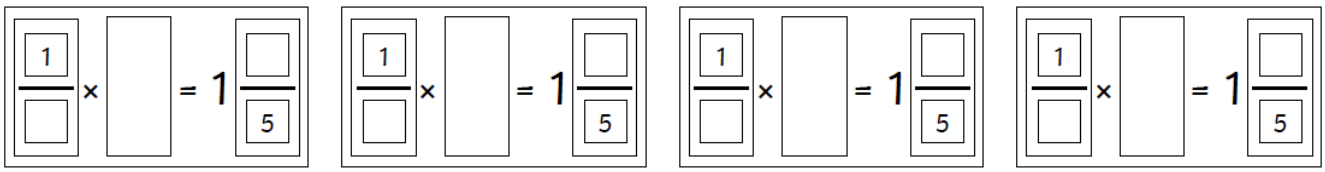
3) Use each of these digit cards once to make this calculation have the largest possible answer. Each fraction must be a proper fraction.

1	2	4	5

$\square\frac{\square}{3} - \square\frac{\square}{6} =$

Wednesday

1) Find 4 possible solutions to complete the calculation.



2) Jessie multiplies a unit fraction by an integer.

- The fraction has a denominator which is a factor of 12.
- The product is greater than 1 but less than 2.
- The integer is a factor of 16.

What could the calculation be? There are 3 possibilities.

Can you find a solution when the denominator of the unit fraction is a larger number than the integer you are multiplying the fraction by?

Thursday

1) Find 3 possible solutions where the product is less than 1.

$\frac{2}{\square} \times \square = \frac{\square}{12}$	$\frac{2}{\square} \times \square = \frac{\square}{12}$
$\frac{2}{\square} \times \square = \frac{\square}{12}$	$\frac{2}{\square} \times \square = \frac{\square}{12}$

Now, find 3 possible solutions where the product is greater than 1 but less than 2.

$\frac{2}{\square} \times \square = 1\frac{\square}{12}$	$\frac{2}{\square} \times \square = 1\frac{\square}{12}$
$\frac{2}{\square} \times \square = 1\frac{\square}{12}$	$\frac{2}{\square} \times \square = 1\frac{\square}{12}$

2) Jessie multiplies a non-unit fraction by an integer.

The fraction has a denominator which is a multiple of 5.

The product is greater than 1 but less than 2.

The integer is a factor of 20.

What could the calculation be? Find 4 possibilities. Remember to simplify the product where possible.

Friday

1) What could the value of the missing digits be? Find two possible solutions.

$\square\frac{\square}{4} \times 3 = 2\frac{3}{\square} \times \square$ $\qquad$ $\square\frac{\square}{4} \times 3 = 2\frac{3}{\square} \times \square$

2) On average, a shallower bath uses $72\frac{3}{8}$ litres of water, whereas a deeper bath uses $80\frac{3}{4}$ litres of water.

In one year, how much more water would always taking a deep bath use than always taking a shallow bath, if someone had 3 baths a week?

Show your working out.

Taking a deep bath would use _____ more litres of water than taking a shallow bath.

3) Write a problem that involves multiplying mixed numbers for your partner to solve.

_____

_____

_____

Maths Fractions Week 5 Extra Challenge Answers

Monday

1) a) $2\frac{3}{5} - \frac{7}{10} = 1\frac{9}{10}$

   b) $4\frac{1}{2} - \frac{3}{4} = 3\frac{3}{4}$

   c) $\frac{5}{6} + 2\frac{1}{3} = 3\frac{1}{6}$

2) $6\frac{1}{12} - \frac{1}{2} = 5\frac{7}{12}$

   $6\frac{1}{12} - \frac{1}{3} = 5\frac{9}{12}$

   $6\frac{1}{12} - \frac{1}{4} = 5\frac{10}{12}$

   $6\frac{1}{12} - \frac{1}{6} = 5\frac{11}{12}$

Tuesday

1) $10 - 4\frac{2}{5} = 5\frac{3}{5}$

   The distances must total $5\frac{3}{5}$. There are lots of different possible answers. For example:

   She could have hiked $2\frac{1}{10}$ miles on Saturday and $3\frac{1}{2}$ miles on Sunday.

2) $3\frac{1}{8} - 2\frac{3}{4} = \frac{3}{8}$

3) $5\frac{2}{3} - 1\frac{4}{6} = 4$

Wednesday

1) $\frac{1}{5} \times 6 = 1\frac{1}{5}$

   $\frac{1}{5} \times 7 = 1\frac{2}{5}$

   $\frac{1}{5} \times 8 = 1\frac{3}{5}$

   $\frac{1}{5} \times 9 = 1\frac{4}{5}$

   Children might choose to use their equivalent fractions knowledge, such as $\frac{1}{10} \times 12 = \frac{12}{10} = 1\frac{2}{10} = 1\frac{1}{5}$

2) There are three possible solutions.

   $\frac{1}{3} \times 4 = \frac{4}{3} = 1\frac{1}{3}$

   $\frac{1}{6} \times 8 = \frac{8}{6} = 1\frac{2}{6} = 1\frac{1}{3}$

   $\frac{1}{12} \times 16 = \frac{16}{12} = 1\frac{4}{12} = 1\frac{1}{3}$

   No, it is not possible to find a solution to this question when the denominator is larger than the integer you are multiplying by. In order to get an answer between 1 and 2, you need to create an improper fraction where the numerator is larger than the denominator. This only happens when the integer you are multiplying by is larger than the denominator.

Thursday

1) Example answers include:

   $\frac{2}{12} \times 2 = \frac{4}{12}$

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

   $\frac{2}{6} \times 2 \left(= \frac{4}{12} \times 2\right) = \frac{8}{12}$

   Children might choose to use their equivalent fractions knowledge, as shown in the last example answers.

   $\frac{2}{12} \times 7 = \frac{14}{12} = 1\frac{2}{12}$

   $\frac{5}{12} \times 4 = \frac{20}{12} = 1\frac{8}{12}$

   $\frac{2}{6} = \frac{4}{12} \times 4 = \frac{16}{12} = 1\frac{4}{12}$

2) $\frac{3}{10} \times 5 = \frac{15}{10} = 1\frac{5}{10} = 1\frac{1}{2}$

   $\frac{8}{10} \times 2 = \frac{16}{10} = 1\frac{6}{10} = 1\frac{3}{5}$

   $\frac{6}{15} \times 4 = \frac{24}{15} = 1\frac{9}{15} = 1\frac{3}{5}$

   $\frac{8}{20} \times 4 = \frac{32}{20} = 1\frac{12}{20} = 1\frac{3}{5}$

Friday

1) Here are two possible solutions:

$3\frac{3}{4} \times 3 = 2\frac{3}{12} \times 5$

$1\frac{3}{4} \times 3 = 2\frac{5}{8} \times 2$

2) $72\frac{3}{8} \times 3 =$

$72 \times 3 = 216$

$\frac{3}{8} \times 3 = \frac{9}{8} = 1\frac{1}{8}$

$80\frac{3}{4} \times 3 =$

$80 \times 3 = 240$

$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$

$240 + 2\frac{1}{4} = 242\frac{1}{4}$

3 baths a week would use between $217\frac{1}{8}$ and $242\frac{1}{4}$ litres of water.

$217\frac{1}{8} \times 52 =$

$217 \times 52 = 11\,284$

$\frac{1}{8} \times 52 = \frac{52}{8} = 6\frac{4}{8} = 6\frac{1}{2}$

$11\,284 + 6\frac{1}{2} = 11\,290\frac{1}{2}$

$242\frac{1}{4} \times 52 =$

$242 \times 52 = 12\,584$

$\frac{1}{4} \times 52 = \frac{52}{4} = 13$

$12\,584 + 13 = 12\,597$

$12\,597 - 11\,290\frac{1}{2} = 1306\frac{1}{2}$ litres

Taking a deep bath would use $1306\frac{1}{2}$ more litres of water than taking a shallow bath.