

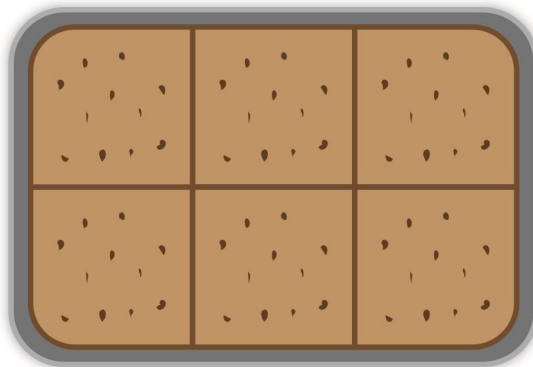
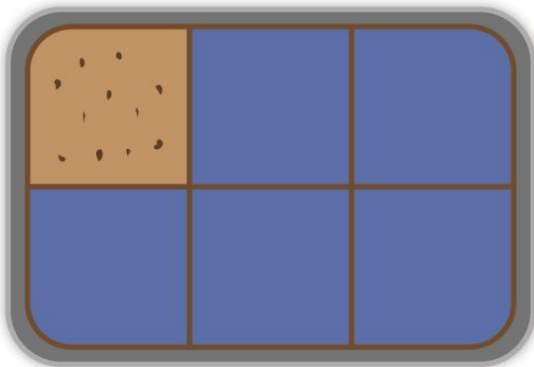
Lesson 11: Adding and subtracting fractions Level 2

Objectives

- Add and subtract fractions with common denominators
- Add and subtract fractions with different denominators using array representations
- Recognise equivalent fractions using array representations
- Simplify fractions

Introduction activity – Flapjack in a tray

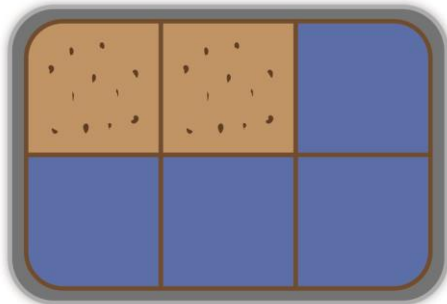
Matthew works in a café behind the counter selling food and drink. The café sells slices of flapjack. There are 2 trays of flapjack on display. Both trays of flapjack are cut into 6 equal pieces. Each piece of flapjack is for sale.



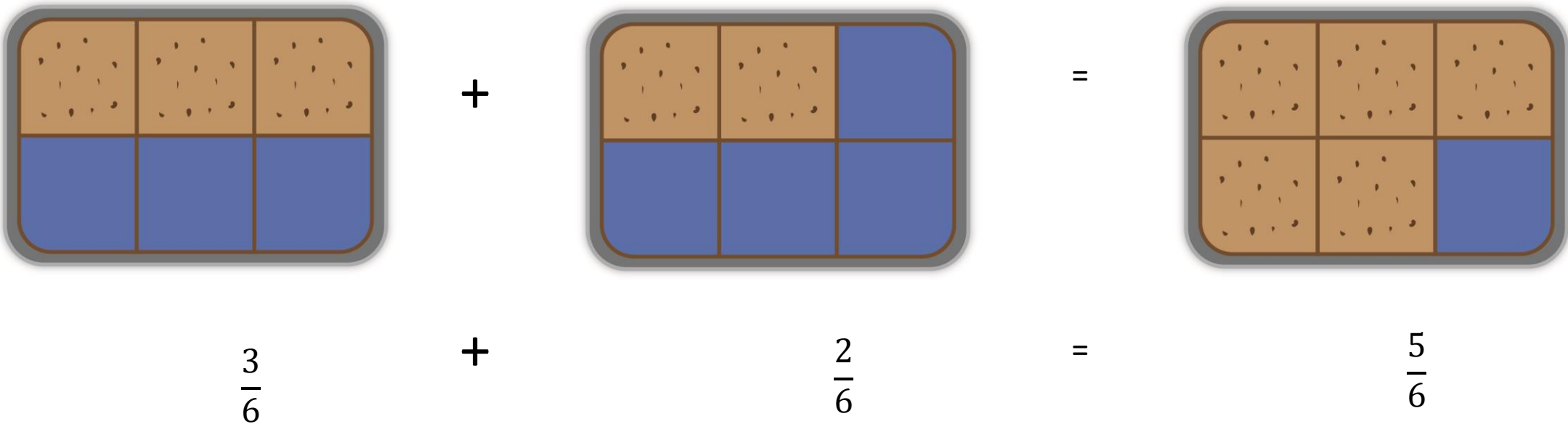
Introduction activity – Flapjack in a tray

At the end of Matthew's shift working at the café, there were 3 pieces of flapjack left in one tray and 2 pieces of flapjack left in the other tray. If Matthew added all of the pieces of flapjack together, how many pieces would he have?

Matthew placed all the pieces of flapjack into one of the trays. What fraction of this tray would be filled with flapjack?



Discuss 1: Learners' representations and answers



Adding and subtracting fractions



KEY IDEA

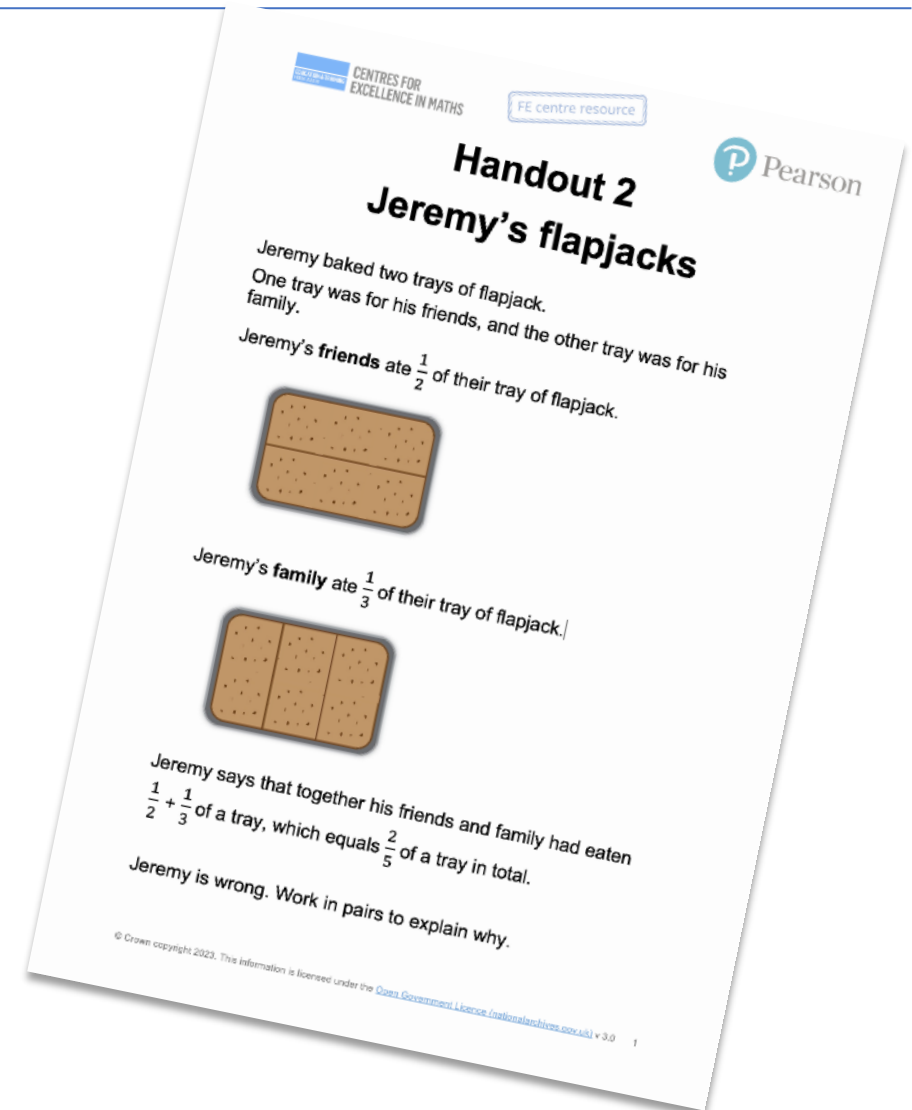
- The total number of pieces that make up one whole is known as the **denominator**. This number is written at the bottom of the fraction.
- The number of pieces that we have of the whole is known as the **numerator**. This number is written at the top of the fraction.
- When we **add or subtract fractions**, we always add or subtract equal pieces. The denominators must be the same.

Jeremy's flapjacks

Handout
available

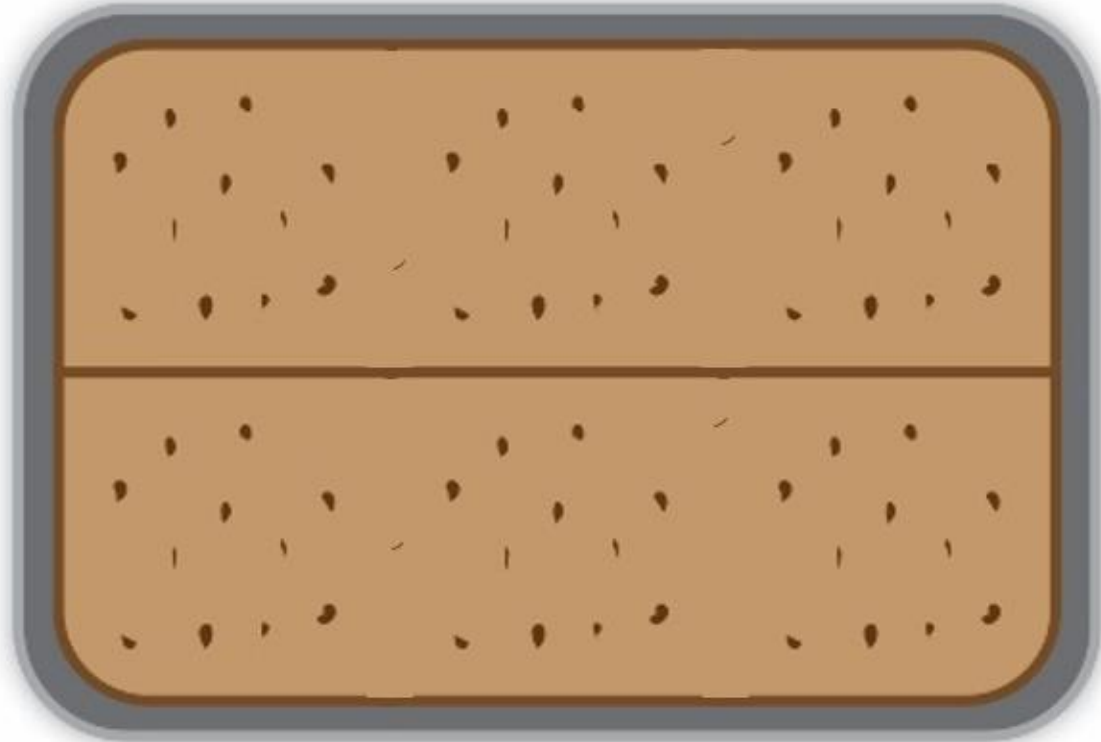


- Jeremy has baked two trays of flapjacks for his friends and family.
- Read through the handout and consider why Jeremy is wrong about the total amount eaten.
- Discuss your thoughts with your partner, using the diagrams of the flapjacks to help you.
- Come to an agreement and present your thinking on your mini-whiteboard.



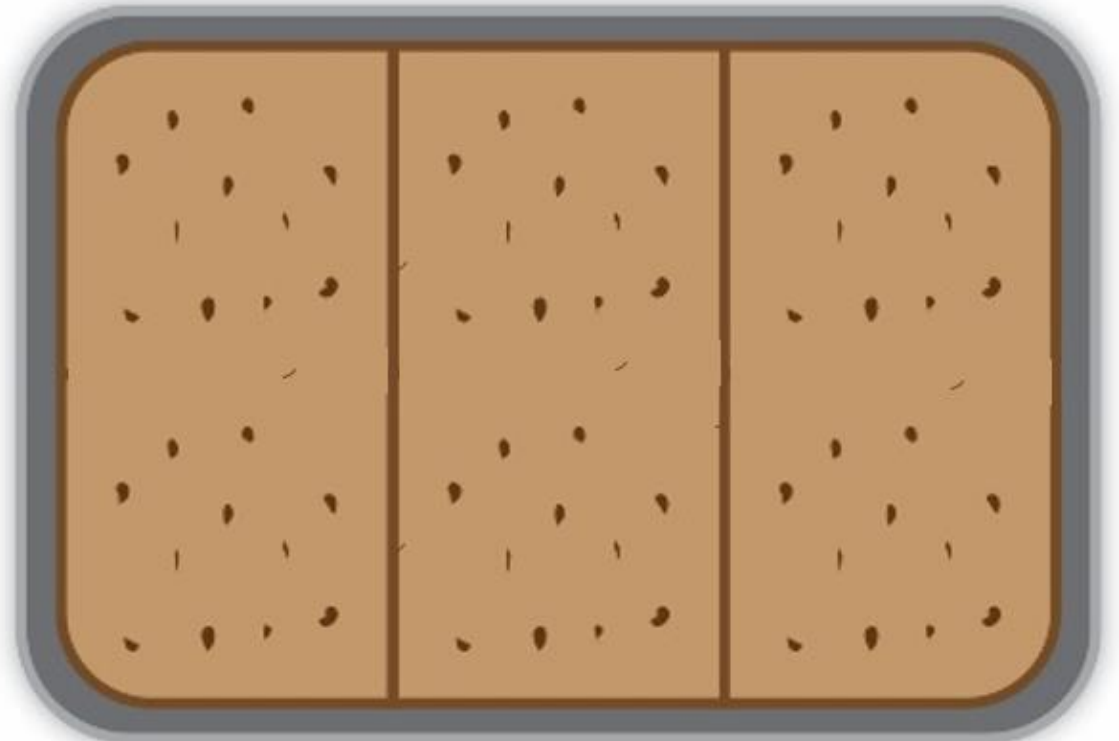
Jeremy's friends

Jeremy's **friends** ate
 $\frac{1}{2}$ of their tray of
flapjack



Jeremy's family

Jeremy's **family** ate
 $\frac{1}{3}$ of their tray of
flapjack



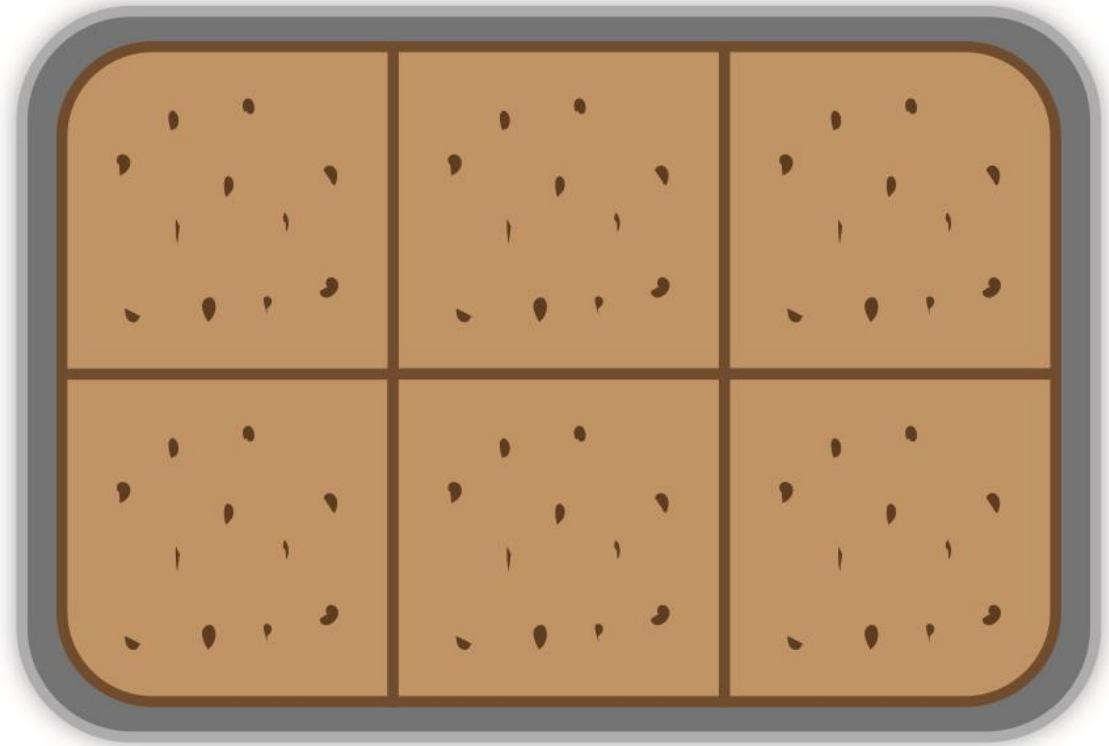
Common Denominator

Now let's combine the two cuts.

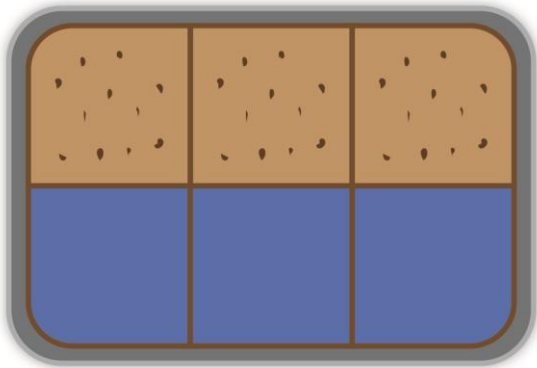
How many pieces are there now?

What fraction is each piece?

This means that the common denominator of 2 and 3 is 6.

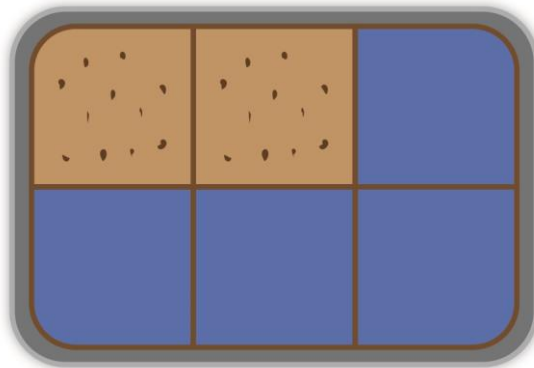


Adding fractions

 $\frac{1}{2}$

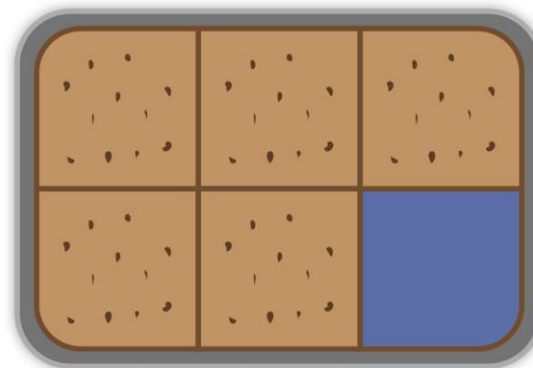
+

+

 $\frac{1}{3}$

=

=

 $\frac{5}{6}$

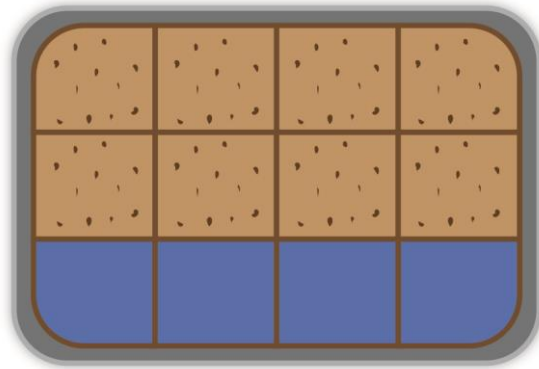
Adding and subtracting fractions



KEY IDEA

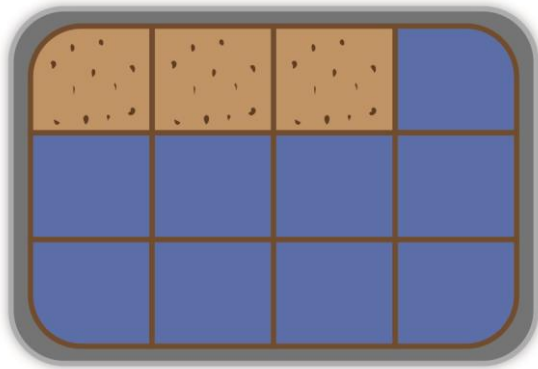
- When adding or subtracting two fractions with different denominators, you must make the fractions equivalent, and both fractions must have the same denominator.
- You can use a common multiple or lowest common multiple to make the fractions equivalent.
- If you can, simplify your answer.

Tutor demonstration – subtracting fractions



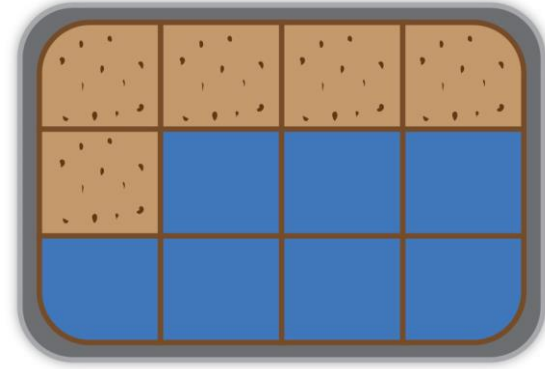
$8/12$

-



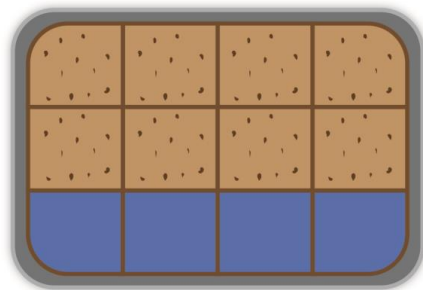
$3/12$

=



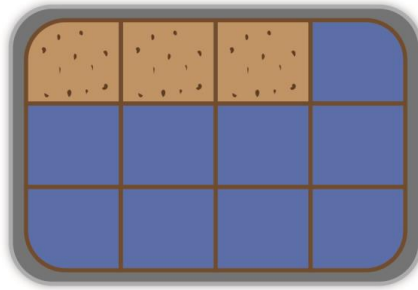
$5/12$

Review of tutor demonstration



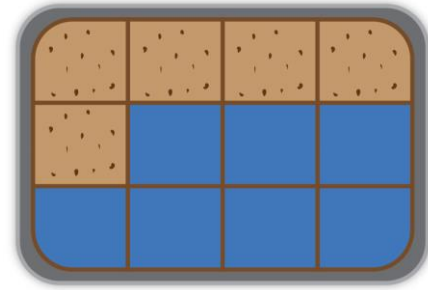
$\frac{2}{3}$

–



$\frac{1}{4}$

=



$\frac{8}{12}$

–

$\frac{3}{12}$

=

$\frac{5}{12}$

Explain why these are equivalent fractions.

Can this answer be simplified?
If not, why not?

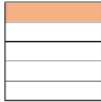
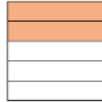
Card matching activity

Handout
available



Work in pairs and share your ideas.

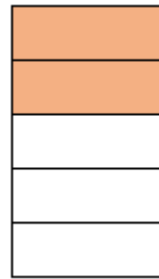
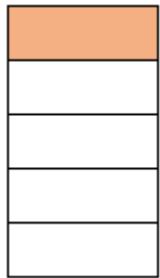
1. First, match the **fraction array** cards with the **fraction calculations**.
2. Next, match the **fraction answer** cards to the **fraction arrays**.
3. Finally, match **percentage** cards to the **fraction answers**.

Calculation	Fraction array	Fraction array	Answer
$\frac{1}{5} + \frac{2}{5}$			$\frac{3}{5}$
$\frac{1}{2} + \frac{1}{4}$			
$\frac{3}{4} - \frac{1}{3}$			
$\frac{1}{2} - \frac{1}{5}$			
$\frac{2}{5} + \frac{1}{3}$			
$\frac{2}{3} - \frac{1}{2}$			
$\frac{2}{5} + \frac{1}{2}$			

$$\frac{1}{5}$$

+

$$\frac{2}{5}$$

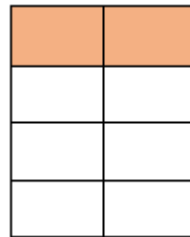
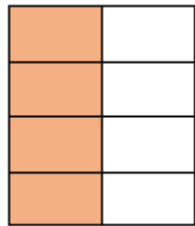


REVIEW

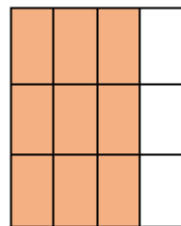
$$\frac{1}{2}$$

+

$$\frac{1}{4}$$

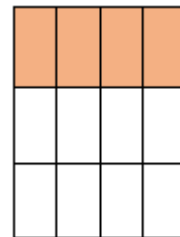


$$\frac{3}{4}$$



-

$$\frac{1}{3}$$

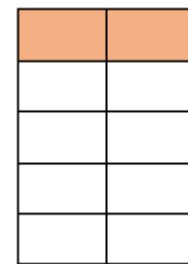
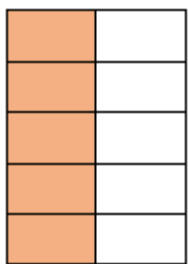


REVIEW

$$\frac{1}{2}$$

-

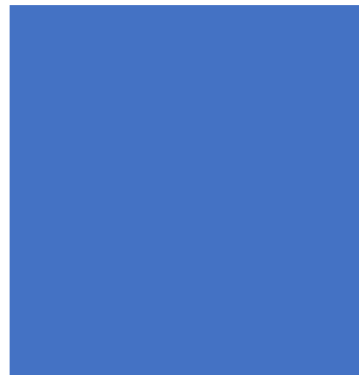
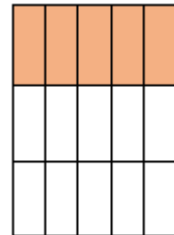
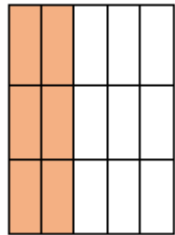
$$\frac{1}{5}$$



$$\frac{2}{5}$$

+

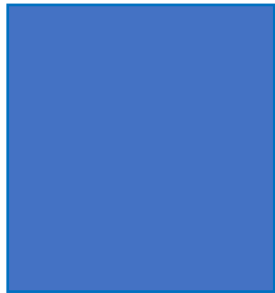
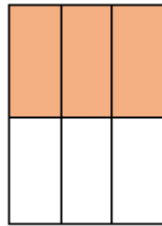
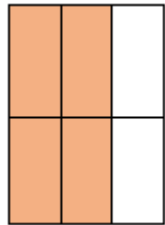
$$\frac{1}{3}$$



$$\frac{2}{3}$$

-

$$\frac{1}{2}$$

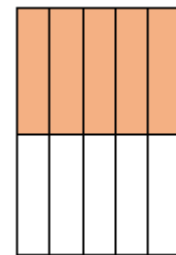
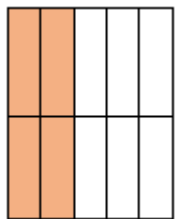


REVIEW

$$\frac{2}{5}$$

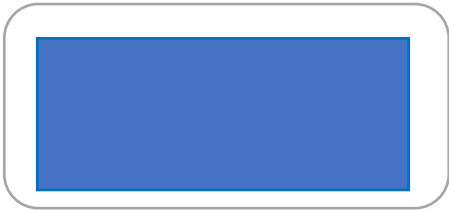
+

$$\frac{1}{2}$$



Practice question 1

Work out $\frac{4}{5} - \frac{3}{8}$



Practice question 2



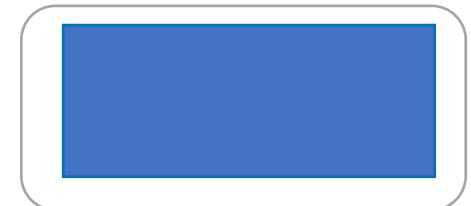
Gareth sells hot drinks.

He sells cups of tea, cups of coffee and cups of hot chocolate.

Of all the hot drinks he sold last week:

- $\frac{2}{5}$ were cups of tea
- $\frac{1}{3}$ were cups of coffee.

What fraction of all cups of hot drinks sold were cups of hot chocolate?



Lesson review:

Adding and subtracting fractions

Level 2

Objectives

- Add and subtract fractions with common denominators
- Add and subtract fractions with different denominators using array representations
- Recognise equivalent fractions using array representations
- Simplify fractions

Suggested further steps/areas to work on

- Adding and subtracting mixed numbers

Lesson 11: Credits

Photo acknowledgements:

123RF.com: Andy Fletch

Text acknowledgements:

Pearson Edexcel Functional Skills, Practice Set 3 -
Mathematics Level 2 (Non-Calculator) PRACL2/N03 Question
3c, Pearson Edexcel Functional Skills, Past Paper 5 -
Mathematics Level 2 (Non-Calculator) PMAT2/N05 Question 1