

Year 7 – Maths Knowledge Organiser Spring 2 (2023/2024)

Addition and subtraction of fractions



What do I need to be able to do?

- Convert between mixed numbers and fractions.
- Convert between mixed number and improper fractions.
- Add and subtract unit fractions with the same denominator.
- Understand and use equivalent fractions.
- Add and subtract fractions where denominators share a simple common multiple.
- Add and subtract fractions with any denominator.
- Add and subtract improper fractions and mixed numbers.

Keywords:

Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken.

Denominator: the number below the line on a fraction. The number represent the total number of parts.

Equivalent: of equal value.

Unit fraction: is a fraction with a numerator of 1.

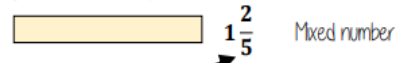
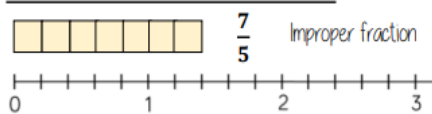
Non-unit fraction: a fraction where the numerator is greater than 1.

Proper fraction: a fraction with a bigger denominator than numerator.

Improper fractions: a fraction with a bigger numerator than denominator

Mixed numbers: a number with an integer and a proper fraction.

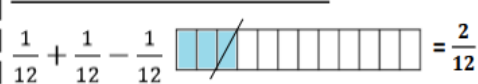
Mixed numbers and fractions



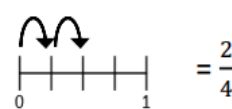
In this model 5 parts make up a whole

Fractions can be bigger than a whole

Add/Subtract unit fractions

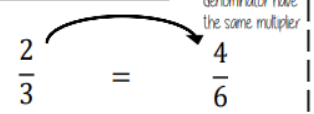


$$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$$



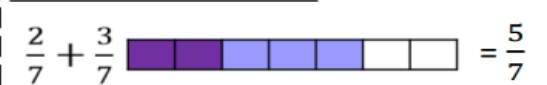
With the same denominator ONLY the numerator is added or subtracted

Equivalent fractions

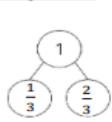


$$\frac{1}{3} = \frac{2}{6}$$

Add/Subtract fractions



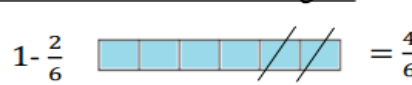
Sequences



$$\frac{1}{3}, 1, 1\frac{2}{3}, 2\frac{1}{3}, 3, \dots$$

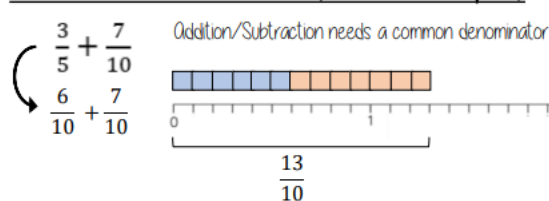
Represent this on a number line to help

Add/Subtract from integers



The denominator indicates the number of parts a whole is made up of

Add/Subtraction fractions (common multiples)

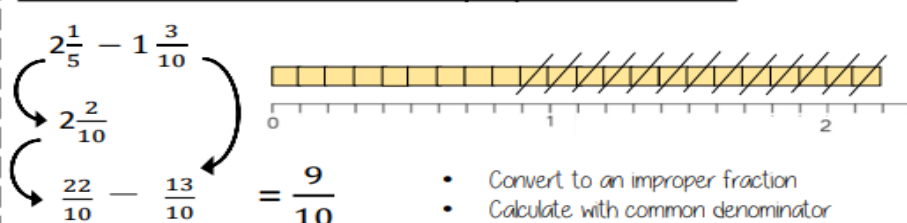


Add/Subtraction any fractions



Use equivalent fractions to find a common multiple for both denominators

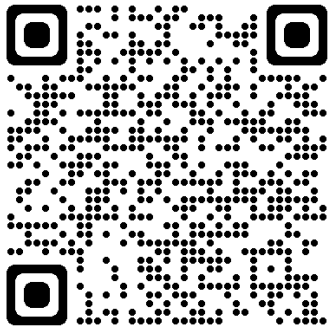
Add/Subtraction fractions (improper and mixed)



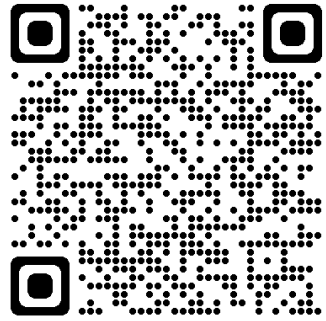
- Convert to an improper fraction
- Calculate with common denominator

Partitioning method

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



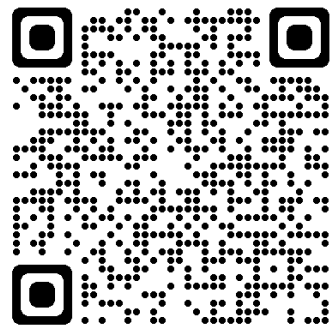
Mixed numbers and
improper fractions



Mixed numbers,
proper and improper
fractions



How to add and
subtract fractions



Equivalent fractions