


# Fractions

# Knowledge Organiser



Key Vocabulary	Equivalent Fractions	Compare and Order Fractions
numerator	<p>To find equivalent fractions, we multiply or divide the numerator and denominator by the same number.</p> $\frac{1}{2} \xrightarrow{\times 5} \frac{5}{10} \xrightarrow{\times 10} \frac{10}{20}$	<p>We can compare and order fractions by using common denominators.</p>
denominator		
unit fraction		
non-unit fraction		
whole		
equivalent	Mixed Numbers	Improper Fractions
mixed number	<p>Mixed numbers contain a whole number and a fraction.</p>	<p>An improper fraction has a numerator which is greater than or equal to the denominator.</p> $\frac{5}{3}$
improper fraction	Convert an Improper Fraction to a Mixed Number	Convert a Mixed Number to an Improper Fraction
simplest form	<p><math>\frac{9}{4}</math></p> <p><math>9 \div 4 = 2r1</math></p> <p><math>2\frac{1}{4}</math></p> <p>Divide the numerator by the denominator.</p> <p>This shows you the whole number and the fraction.</p>	<p>Multiply the whole by the denominator to make an improper fraction.</p> <p><math>2\frac{5}{6} = \frac{12}{6} + \frac{5}{6} = \frac{17}{6}</math></p> <p>Add the fractions together.</p>
multiple		
common denominator	Fractions of Quantities	
common numerator	<p>To find a fraction of a number, divide by the denominator and multiply by numerator.</p>	
	<p>To find quarters of 20:</p> <p><math>\frac{1}{4}</math> of 20 = 5    <math>\frac{2}{4}</math> of 20 = 10    <math>\frac{3}{4}</math> of 20 = 15    <math>\frac{4}{4}</math> of 20 = 20</p>	<p>To find eighths of 56:</p> <p><math>\frac{1}{8}</math> of 56 = 7    <math>\frac{2}{8}</math> of 56 = 14    <math>\frac{3}{8}</math> of 56 = 21    <math>\frac{4}{8}</math> of 56 = 28  <math>\frac{5}{8}</math> of 56 = 35    <math>\frac{6}{8}</math> of 56 = 42    <math>\frac{7}{8}</math> of 56 = 49    <math>\frac{8}{8}</math> of 56 = 56</p>

Adding and Subtracting Fractions

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

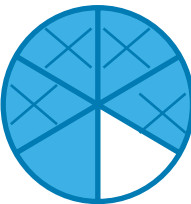


$\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$

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

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

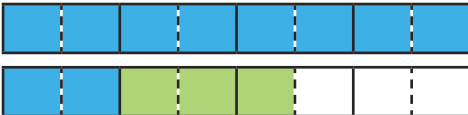


To add or subtract fractions with denominators that are multiples of the same number, we must change one fraction to have the same denominator.

Add Fractions When the Total is Greater Than 1

$$\frac{1}{2} + \frac{3}{4} + \frac{5}{8} = \frac{4}{8} + \frac{6}{8} + \frac{5}{8} = \frac{15}{8} = 1\frac{7}{8}$$








Add Mixed Numbers

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


$$1\frac{1}{4} + \frac{3}{8} = \frac{5}{4} + \frac{3}{8} = \frac{10}{8} + \frac{3}{8} = \frac{13}{8} = 1\frac{5}{8}$$

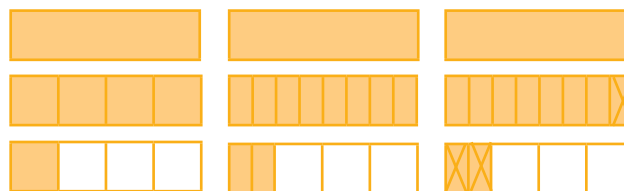
Subtract From a Mixed Number

$$1\frac{2}{3} - \frac{2}{9} = 1\frac{6}{9} - \frac{2}{9} = 1\frac{4}{9}$$

starting number	find the equivalent fraction	subtract
		
		

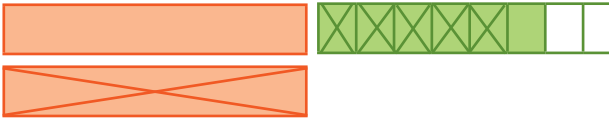
Subtract from a Mixed Number - Breaking the Whole

$$2\frac{1}{4} - \frac{3}{8} = 2\frac{2}{8} - \frac{3}{8} = 1\frac{10}{8} - \frac{3}{8} = 1\frac{7}{8}$$



Subtract Two Mixed Numbers

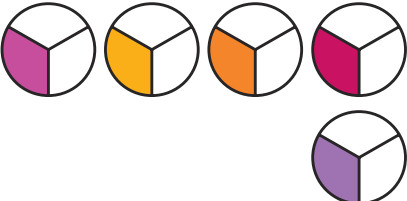
$$2\frac{3}{4} - 1\frac{5}{8} = 1\frac{1}{8}$$



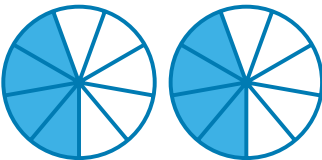
$2 - 1 = 1$

$\frac{3}{4} - \frac{5}{8} = \frac{1}{8}$

Multiply Unit Fractions by an Integer

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


Multiply Non-Unit Fractions by an Integer



$$2 \times \frac{4}{9} = \frac{8}{9}$$

Multiply Mixed Numbers by Integers

Convert to an improper fraction and multiply the numerator by the integer.

$$2\frac{1}{4} \times 2 = \frac{9}{4} \times 2 = \frac{18}{4} = 4\frac{2}{4} = 4\frac{1}{2}$$

Use repeated addition.

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