

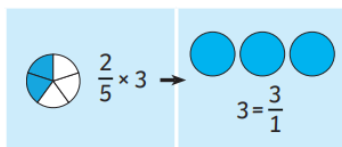
Learning Objectives

- ❖ To compare and order fractions whose denominators are all multiples of the same number
- ❖ To identify, name and write equivalent fractions of a given fraction
- ❖ To recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements
- ❖ To add and subtract fractions with the same denominator and denominators that are multiples of the same number
- ❖ To multiply proper fractions and mixed numbers by whole numbers
- ❖ To read and write decimal numbers as fractions
- ❖ To recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- ❖ To round decimals with two decimal places to the nearest whole number and to one decimal place
- ❖ To read, write, order and compare numbers with up to three decimal places
- ❖ To solve problems involving number up to three decimal places
- ❖ To recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal
- ❖ To solve problems which require knowing percentage and decimal equivalents

Multiplying Fractions by Fractions

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

Multiplying Fractions by Whole Numbers



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

$$\frac{2}{5} \div 2 = \frac{1}{5}$$

Multiplication and division are the inverse of one another so:

$$\div 2 \text{ is the same as } \times \frac{1}{2}$$

$$\frac{2}{5} \times \frac{1}{2} = \frac{2}{10}$$

Four Operations

Same Denominators



$$\frac{4}{7} + \frac{2}{7} = \frac{6}{7}$$



$$\frac{8}{11} - \frac{3}{11} = \frac{5}{11}$$

Different Denominators

$$\frac{2}{7} + \frac{3}{5}$$

Multiples of 7: 7, 14, 21, 28, **35**

Multiples of 5: 5, 10, 15, 20, 25, 30, **35**

$$\frac{2}{7} = \frac{10}{35}, \frac{3}{5} = \frac{21}{35}$$

$$\frac{10}{35} + \frac{21}{35} = \frac{31}{35}$$

$$\frac{9}{10} - \frac{1}{4}$$

Multiples of 10: 10, **20**

Multiples of 4: 4, 8, 12, 16, **20**

$$\frac{9}{10} = \frac{18}{20}, \frac{1}{4} = \frac{5}{20}$$

$$\frac{18}{20} - \frac{5}{20} = \frac{13}{20}$$

Add or subtract the whole numbers and fractions separately.

$$2 \frac{2}{5} + 1 \frac{3}{10}$$

$$2 + 1 = 3$$

$$\frac{2}{5} + \frac{3}{10} = \frac{4}{10} + \frac{3}{10} = \frac{7}{10}$$

$$3 + \frac{7}{10} = 3 \frac{7}{10}$$

$$2 \frac{1}{2} - 1 \frac{1}{4}$$

$$2 - 1 = 1$$

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

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

Convert the mixed numbers to improper fractions.

$$2 \frac{2}{5} + 1 \frac{3}{10}$$

$$2 \frac{1}{2} - 1 \frac{1}{4}$$

$$2 \frac{2}{5} = \frac{12}{5}$$

$$1 \frac{3}{10} = \frac{13}{10}$$

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

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

$$\frac{12}{5} + \frac{13}{10} = \frac{24}{10} + \frac{13}{10} = \frac{37}{10}$$

$$\frac{5}{2} - \frac{5}{4} = \frac{10}{4} - \frac{5}{4} = \frac{5}{4}$$

$$\frac{37}{10} = 3 \frac{7}{10}$$

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

Compare and Order

Key Vocabulary

Numerator
Denominator
Proper fraction
Improper fraction
Factor
Highest common multiple
Lowest common multiple
Equivalents
Common numerator
Common denominator
Decimal equivalent
Simplify
Simplest form
Mixed number
Whole number

Compare and Order Fractions

Use the Common Denominator



Multiples of 5:
5, 10, **15**

$$\frac{3}{5} \square \frac{2}{3}$$

Multiples of 3:
3, 6, 9, 12, **15**



$$\frac{3}{5} \times 3 = \frac{9}{15}$$

$$\frac{9}{15} < \frac{10}{15}$$

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



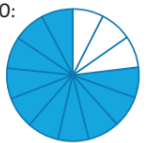
Use the Common Numerator



Multiples of 5:
5, **10**, 15

$$\frac{5}{8} \square \frac{10}{13}$$

Multiples of 10:
10, 20



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

$$\frac{10}{16} < \frac{10}{13}$$

$$\frac{10}{13} = \frac{10}{13}$$



Simplify Fractions

$$\frac{9}{12}$$

Factors of 9:
1, **3**, 9

Factors of 12:
1, 2, **3**, 4, 6, 12

$$\frac{9}{12} \div 3 = \frac{3}{4}$$



Key Concepts

- use common factors to simplify fractions and use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions > 1
- multiply simple pairs of proper fractions, writing the answer in its simplest form
- divide proper fractions by whole numbers
- find the whole amount from the known value of a fraction

What I Should Already Know:

- ❖ How to recognise and show, using diagrams, families of common equivalent fractions
- ❖ How to count up and down in hundredths
- ❖ How to solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities
- ❖ How to add and subtract fractions with the same denominator
- ❖ How to recognise and write decimal equivalents of any number of tenths or hundredths
- ❖ How to recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
- ❖ How to find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- ❖ How to round decimals with one decimal place to the nearest whole number
- ❖ How to compare numbers with the same number of decimal places up to two decimal places
- ❖ How to solve simple measure and money problems involving fractions and decimals to two decimal places.