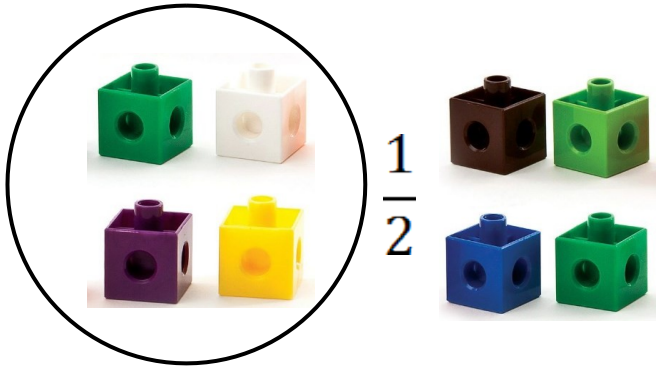
Year 1 Fractions

How can we progress with fractions?

Recognise, find and name a half as one of two equal parts of an object, shape or quantity.

Concrete



$\frac{1}{2}$

Pictorial

A whole apple

1

Half an apple

$\frac{1}{2}$

Abstract

Half of 10 = ☐

Half of 8 = ☐

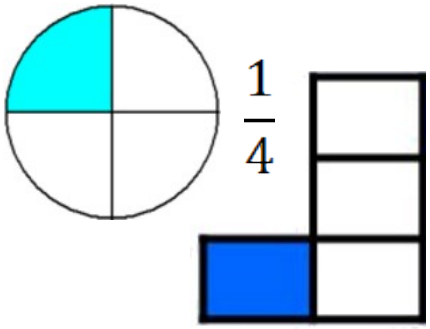
$\frac{1}{2}$ of 14 = ☐

Find and name a quarter as four equal parts of an object, shape or quantity

Concrete

$\frac{1}{4}$

Pictorial



$\frac{1}{4}$

Abstract

A quarter of 20 = ☐

A quarter of 12 = ☐

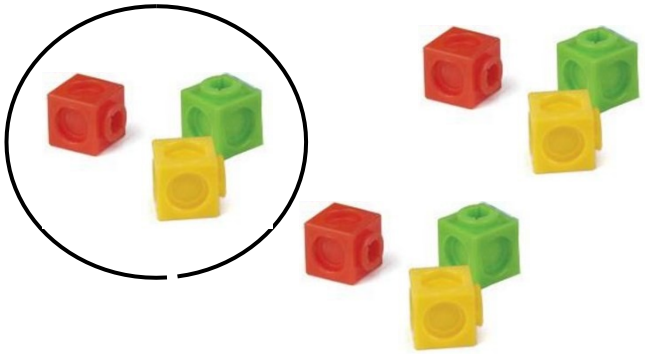
$\frac{1}{4}$ of 8 = ☐

Year 2 Fractions

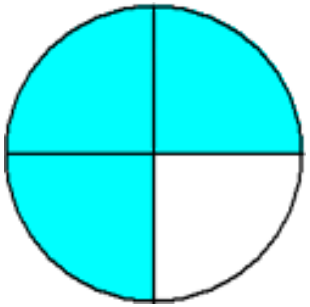
How can we progress with fractions?

Recognise, find and name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity.

Concrete

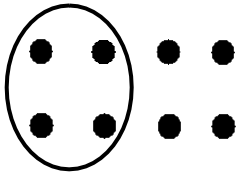


Pictorial



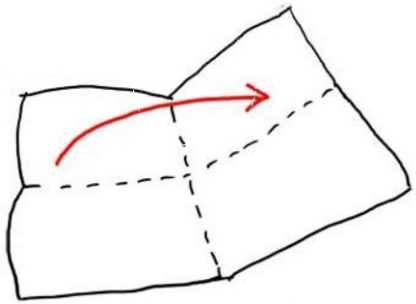
Abstract

$\frac{2}{4}$ of 8 = ☐

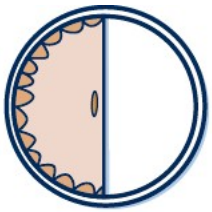


Write simple fractions and recognise the equivalence of 2/4 and 1/2

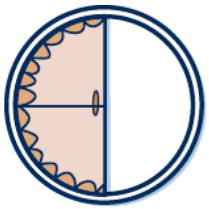
Concrete



Pictorial



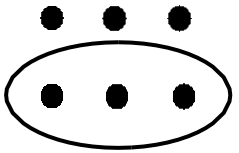
I have $\frac{1}{2}$ *a pie*



You have $\frac{2}{4}$ *of a pie*

Abstract

$\frac{1}{2}$ of 6 = ☐

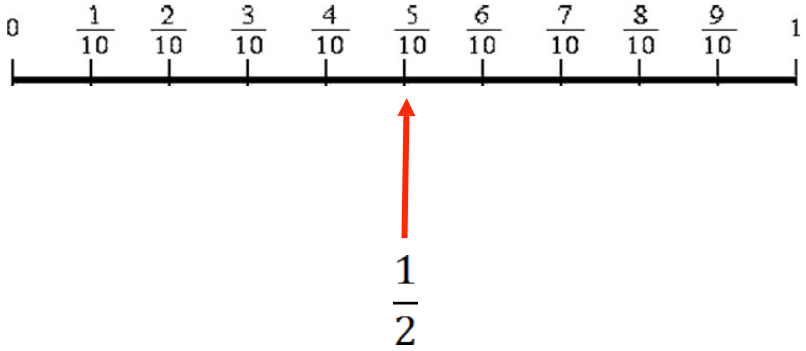


Year 3 Fractions

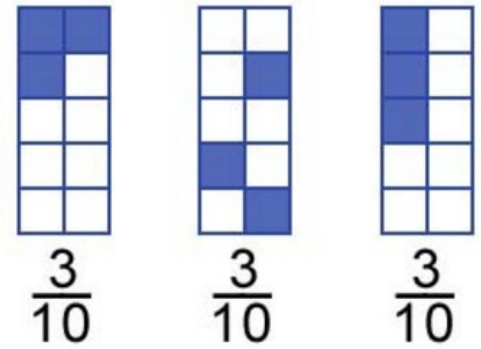
How can we progress with fractions?

Count up and down in tenths: recognise that tenths arise from dividing an object into ten equal parts and in dividing one-digit numbers or quantities by ten.

Concrete



Pictorial



Abstract

$\frac{1}{10}$ of 6 = 0.6 because

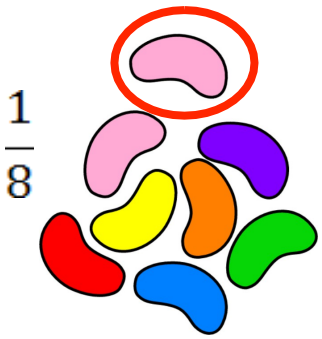
6 ÷ 10 = 0.6

$\frac{1}{10}$ of 7 = 0.7 because

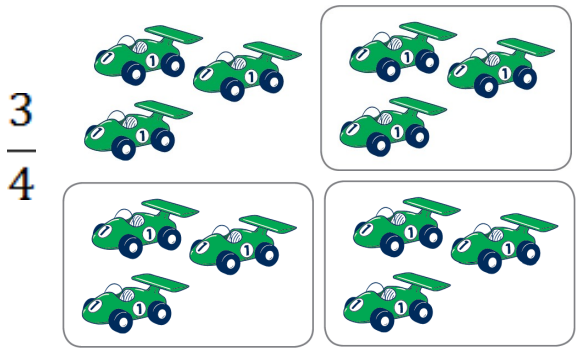
7 ÷ 10 = 0.7

Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions and use fractions as numbers.

Concrete



Pictorial



Abstract

$\frac{1}{5}$ of 15 sweets = 3

Because 15 ÷ 5 = 3

$\frac{2}{5}$ of 15 sweets = 6

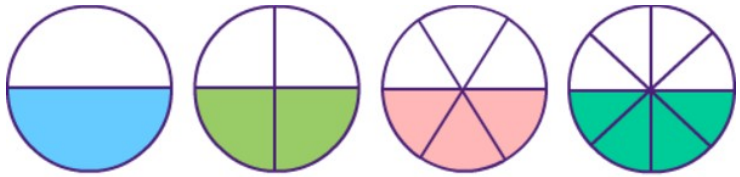
because 15 ÷ 5 = 3 and 3 x 2 = 6

Recognise and show, using diagrams, equivalent fractions with small denominators.

Concrete

two halves $\frac{2}{2}$ four quarters $\frac{4}{4}$

Pictorial



$\frac{1}{2}$ $\frac{2}{4}$ $\frac{3}{6}$ $\frac{4}{8}$

Abstract

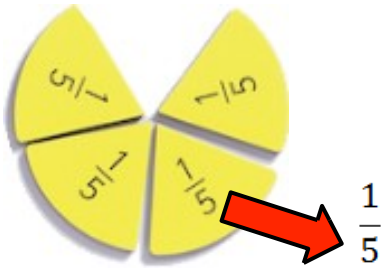
Sam says that two quarters is the same as one half.

Is he correct?

How do you know?

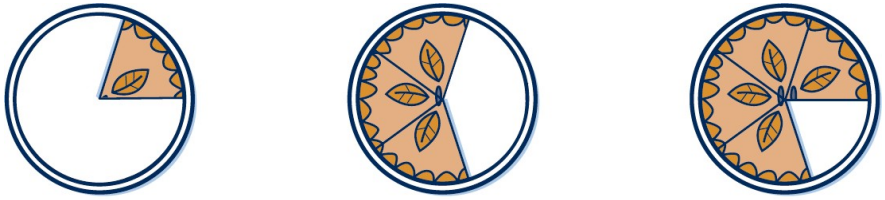
Add and subtract fractions with the same denominator.

Concrete



$\frac{1}{5}$

Pictorial



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

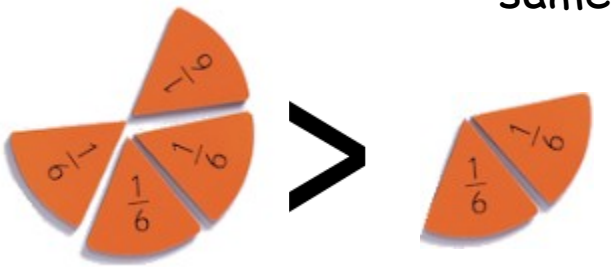
Abstract

$$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$

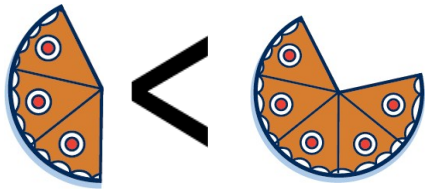
$$\frac{5}{8} - \frac{2}{8} = \frac{3}{8}$$

Compare and order unit fractions with the same denominator

Concrete



Pictorial



Abstract

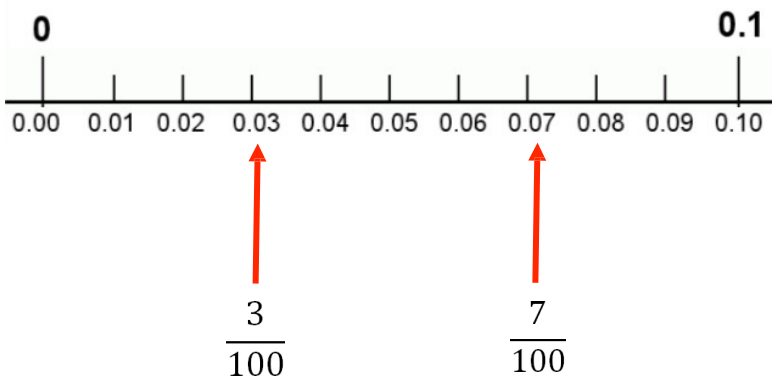
$\frac{2}{8}$ $\frac{3}{8}$ $\frac{5}{8}$ $\frac{7}{8}$

Year 4 Fractions

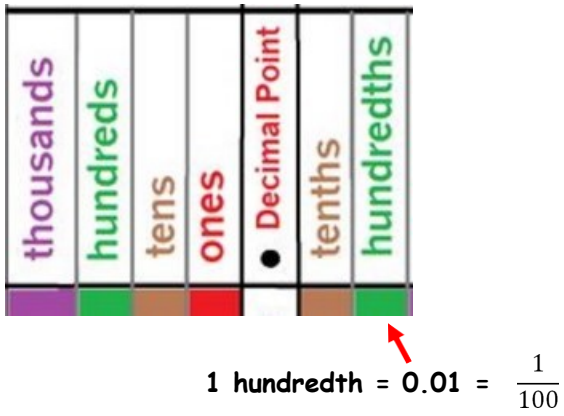
How can we progress with fractions?

Count up and down in hundredths: recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10.

Concrete



Pictorial



Abstract

$\frac{1}{100}$ of 60 = 0.6

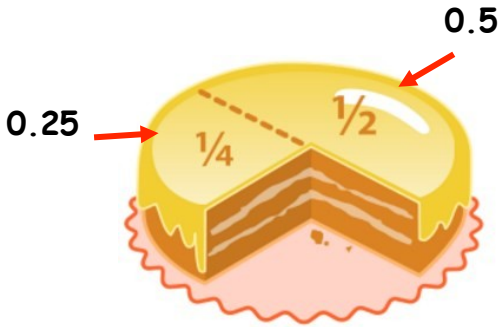
because 60 ÷ 100 = 0.6

$\frac{1}{10}$ of 70 = 0.7

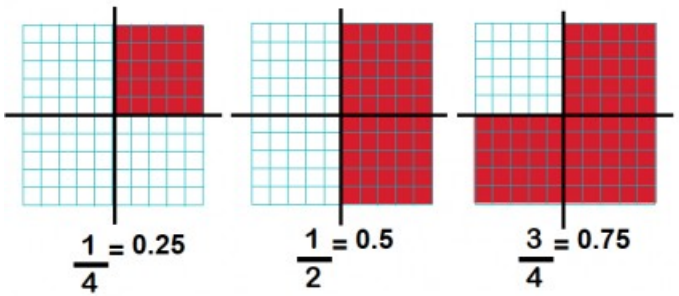
so $\frac{1}{100}$ of 70 = 0.07

Recognise and write decimal equivalents to 1/2 , 1/4 and 3/4

Concrete



Pictorial



Abstract

$\frac{1}{2}$ = 0.5

$\frac{1}{4}$ = 0.25

$\frac{3}{4}$ = 0.75

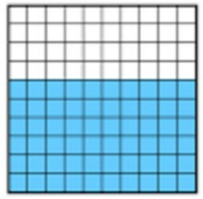
Recognise and write decimal equivalents of any number of tenths or hundredths.

Concrete

$\frac{1}{10}$ of the chocolate bar = 0.1

Pictorial

0.6
six tenths



0.60
sixty hundredths

Abstract

$\frac{1}{10} = 0.1$

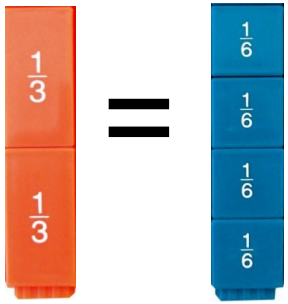
$\frac{3}{10} = 0.3$

$\frac{5}{10} = \frac{1}{2} = 0.5$

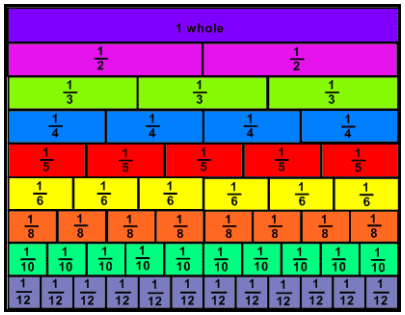
$\frac{8}{100} = 0.08$

Recognise and show using diagrams families of common equivalents

Concrete



Pictorial



Abstract

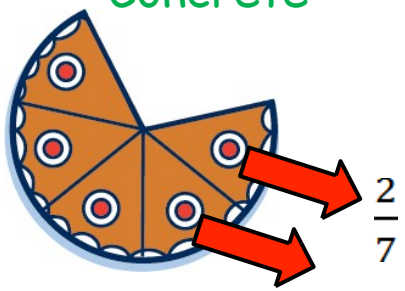
$\frac{2}{3} = \frac{4}{6}$

$\frac{3}{5} = \frac{6}{10}$

$\frac{2}{12} = \frac{1}{6}$

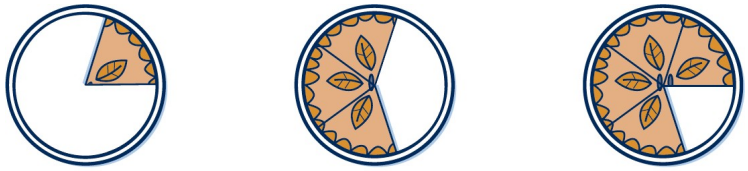
Add and subtract fractions with the same denominator

Concrete



$\frac{2}{7}$

Pictorial



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

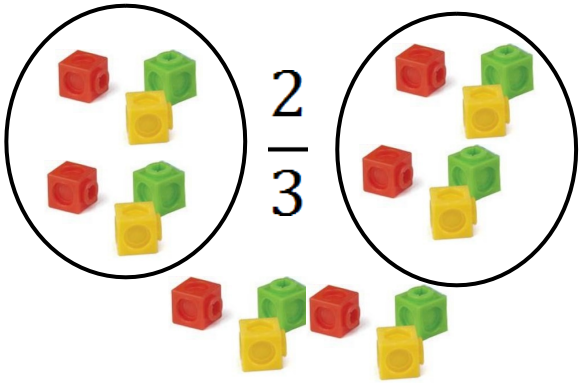
Abstract

Sam eats $\frac{2}{7}$ of a whole pizza. How much does he have left?

Lucy and Ben both eat $\frac{3}{8}$ of a cake. How much have they eaten altogether?

Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.

Concrete



Pictorial

Abstract

$\frac{2}{3}$ of £18

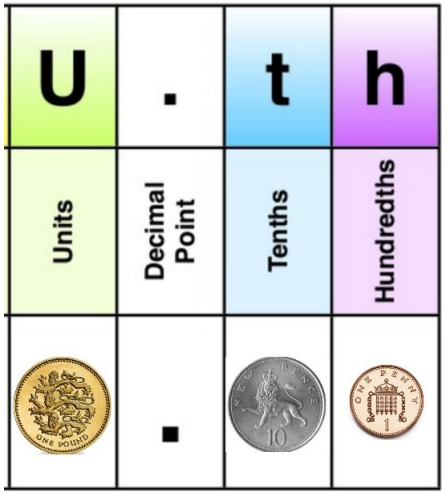
£18 ÷ 3 = £6

£6 x 2 = £12

Solve simple measure and money problems involving fractions and decimals to two decimal places

Concrete

Pictorial



Abstract

100cm = 1m

50cm = $\frac{1}{2}$ = 0.5m

25cm = $\frac{1}{4}$ = 0.25m

10cm = $\frac{1}{10}$ = 0.1m

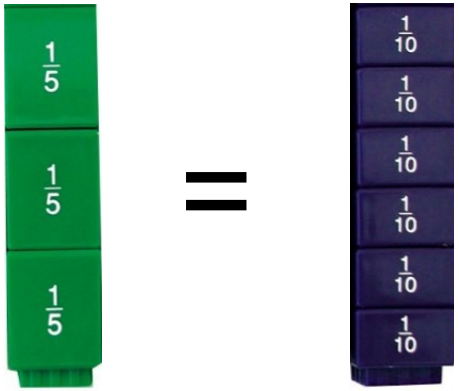
30cm = $\frac{3}{10}$ = 0.3m

Year 5 Fractions

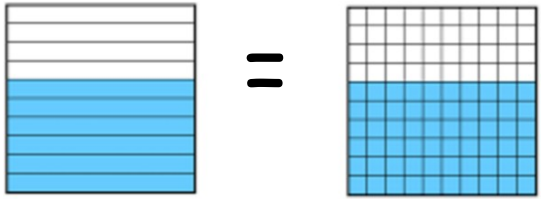
How can we progress with fractions?

Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.

Concrete



Pictorial



$$\frac{6}{10} = \frac{60}{100}$$

Abstract

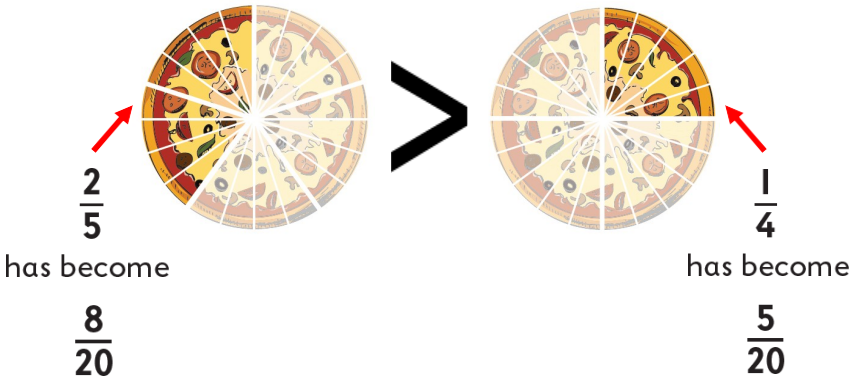
$$\frac{3}{5} = \frac{6}{10} = \frac{60}{100}$$

$$\frac{3}{4} = \frac{75}{100}$$

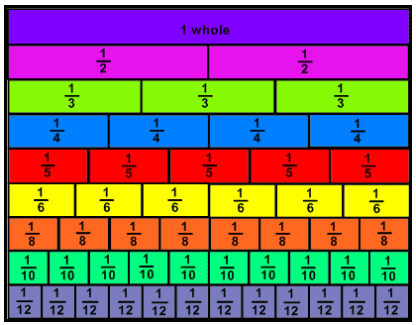
$$\frac{1}{5} = \frac{2}{10} = \frac{20}{100}$$

Compare and order fractions whose denominators are all multiples of the same number.

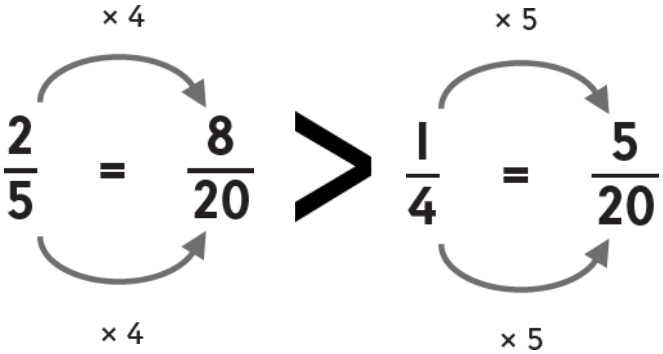
Concrete



Pictorial

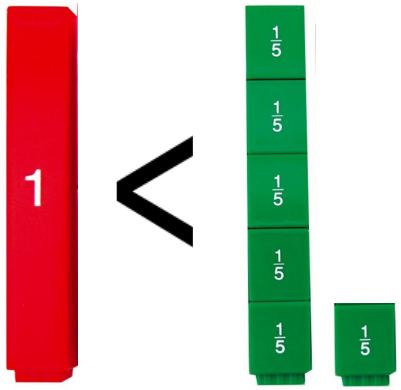


Abstract

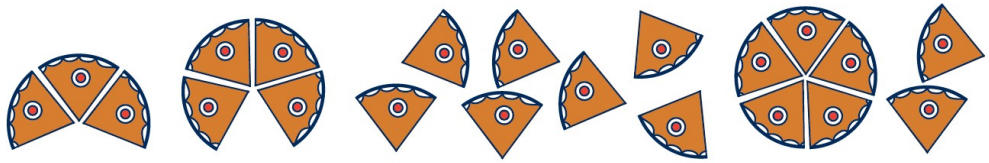


Recognise mixed numbers and improper fractions. Convert from one form to the other and write mathematical statements >1 as a mixed number.

Concrete



Pictorial



Abstract

$$\frac{7}{2} = 3\frac{1}{2}$$

because 7 ÷ 2 = 3 with 1 half left over

$$2\frac{1}{3} = \frac{7}{3}$$

because 2 x 3 = 6 with 1 third left to add

Add and subtract fractions with the same denominators and denominators that are multiples of the same numbers.

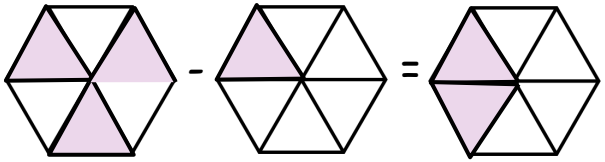
Concrete

So,

$$\frac{8}{20} + \frac{5}{20} = \frac{13}{20}$$

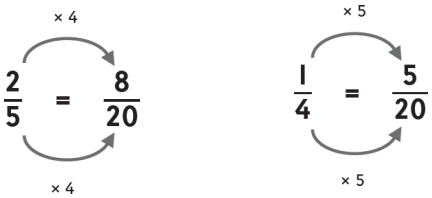
$$\frac{2}{5} + \frac{1}{4} = \frac{13}{20}$$

Pictorial



Abstract

$$\frac{2}{5} - \frac{1}{4}$$



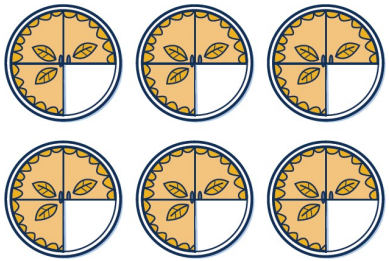
So,

$$\frac{8}{20} - \frac{5}{20} = \frac{3}{20}$$

$$\frac{2}{5} - \frac{1}{4} = \frac{3}{20}$$

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.

Concrete



6 lots of $\frac{3}{4}$

$4\frac{2}{4}$ Altogether

Pictorial

Multiply a proper fraction by a whole number:

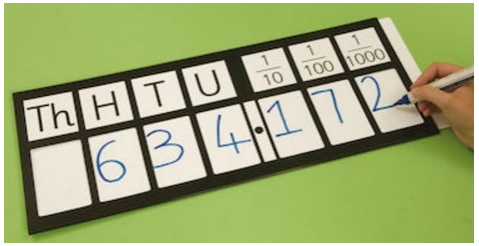
$$\frac{3}{4} \times 6 = \frac{18}{4}$$

Change to a mixed number:

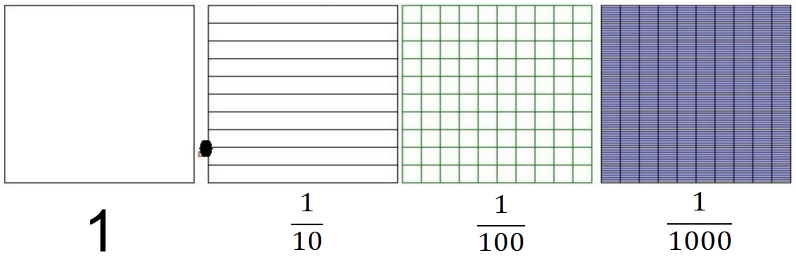
$$\frac{18}{4} = 4\frac{2}{4}$$

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

Concrete



Pictorial



Abstract

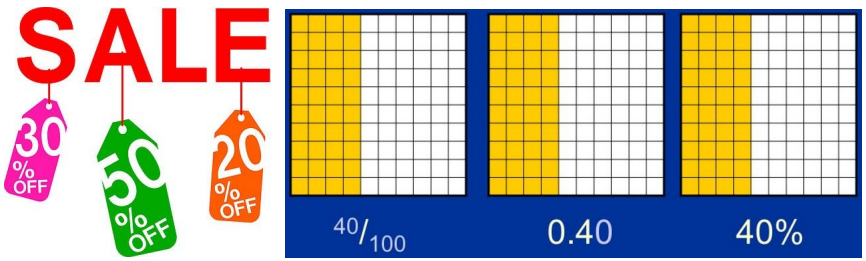
67.153

How many thousandths does this number have? How many more thousandths do you need to add to make 67.16?

Recognise % symbol and understand the meaning: write % as a fraction, decimal and percentage.

Concrete

Pictorial



Abstract

$\frac{4}{10} = 40\% = 0.4$

$\frac{32}{100} = 32\% = 0.32$

$\frac{75}{100} = 75\% = 0.75$

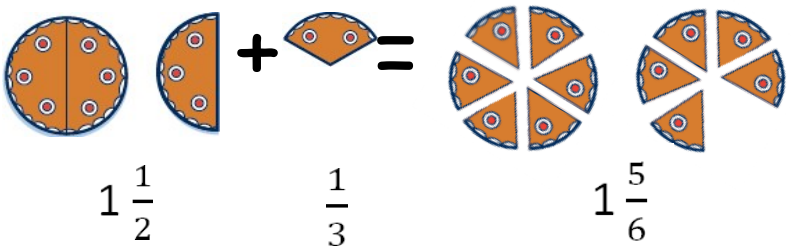
$\frac{2}{25} = \frac{8}{100} = 8\% = 0.08$

Year 6 Fractions

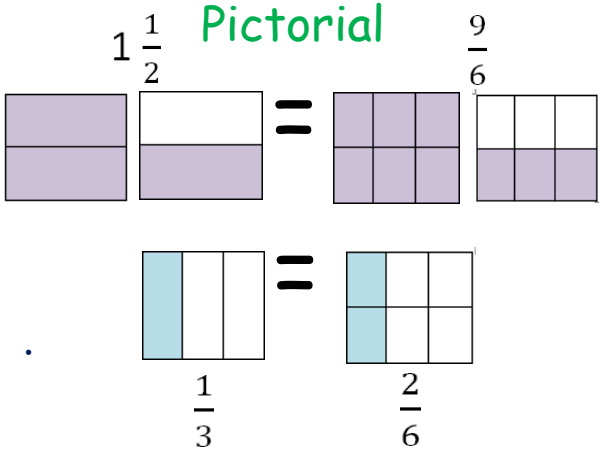
How can we progress with fractions?

Add and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions.

Concrete



Pictorial



Abstract

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

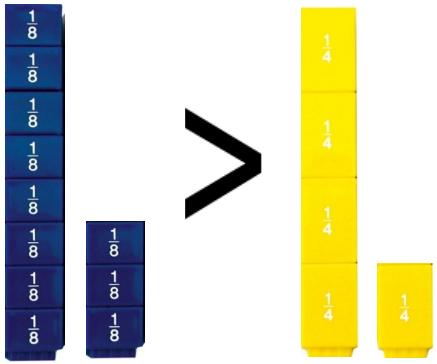
because $1\frac{1}{2} = \frac{3}{2}$

$\frac{3}{2} = \frac{9}{6}$ and $\frac{1}{3} = \frac{2}{6}$

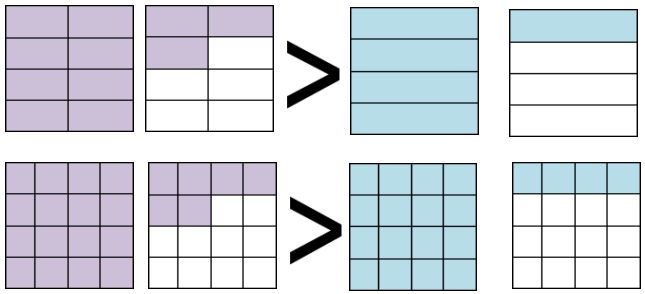
so $\frac{9}{6} + \frac{2}{6} = \frac{11}{6} = 1\frac{5}{6}$

Compare and order fractions including fractions >1

Concrete



Pictorial



Abstract

Which is greater?

$$\frac{2}{8} < \frac{6}{16}$$

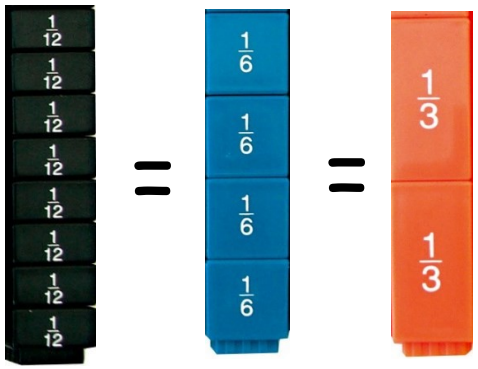
Ordering from smallest to largest by using equivalent fractions:

$$\frac{5}{12}, \frac{2}{3}, \frac{5}{6}$$

$$\frac{5}{12}, \frac{8}{12}, \frac{10}{12}$$

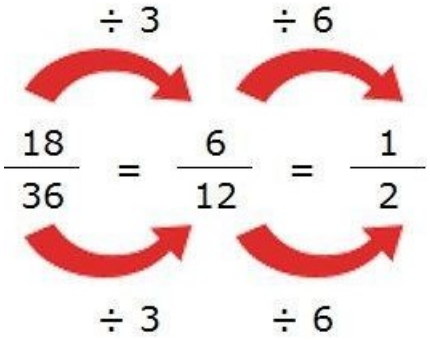
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

Concrete



Pictorial

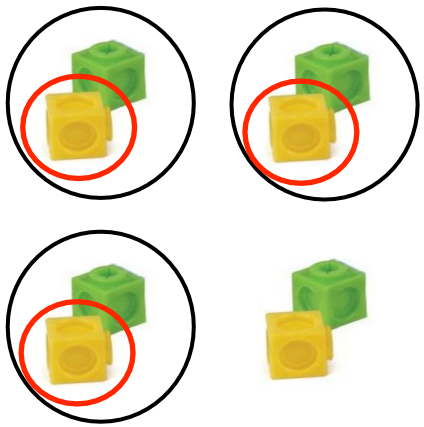
Abstract



Multiply simple pairs of proper fractions writing the answer in its simplest form.

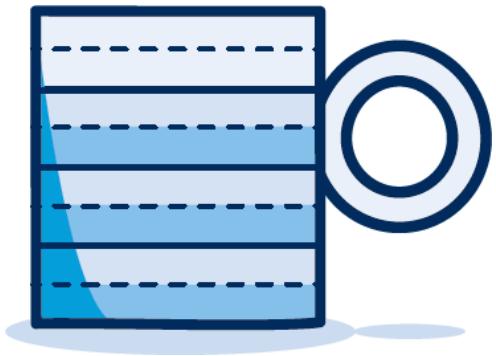
Concrete

$\frac{1}{2}$ of $\frac{3}{4}$



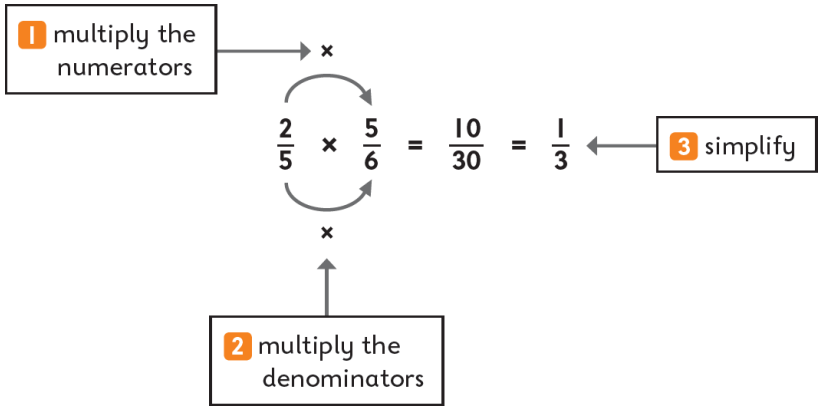
Pictorial

$\frac{1}{2}$ of $\frac{3}{4}$



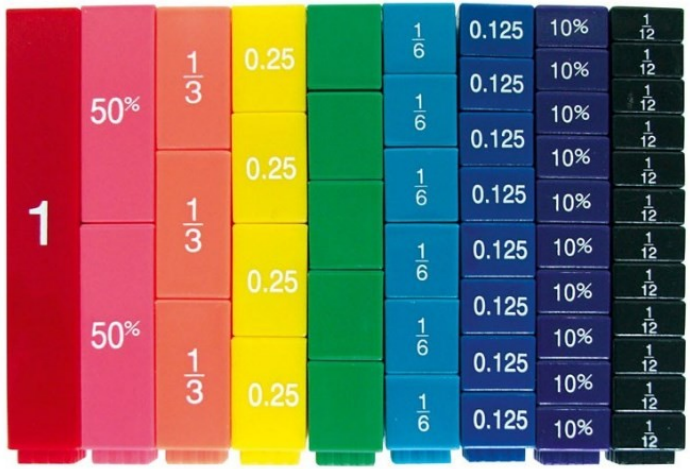
Abstract

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



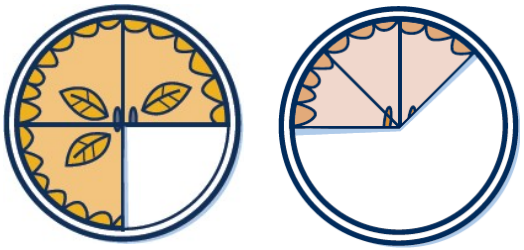
Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.

Concrete



Pictorial

Which would you prefer 75% or $\frac{3}{8}$ of a pie?



75%

$\frac{3}{8}$

Abstract

John scored $\frac{40}{80}$ in his spelling test and Hannah scored 40%. Who scored more?

John = $\frac{40}{80}$ = **50%**

Hannah = **40%**

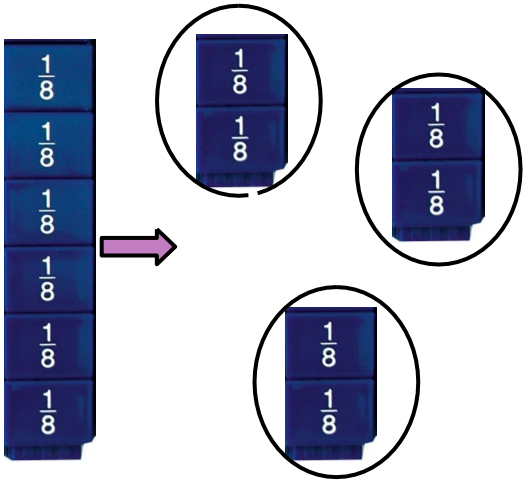
One paving slab is 0.3m long and another is $\frac{1}{4}$ of a metre. Which is longer?

= **0.25m**

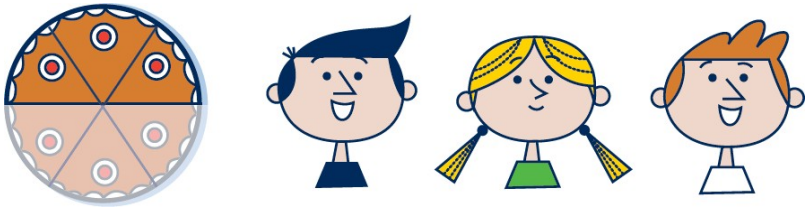
0.3m is larger than 0.25m

Divide proper fractions by whole numbers.

Concrete



Pictorial



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

Abstract

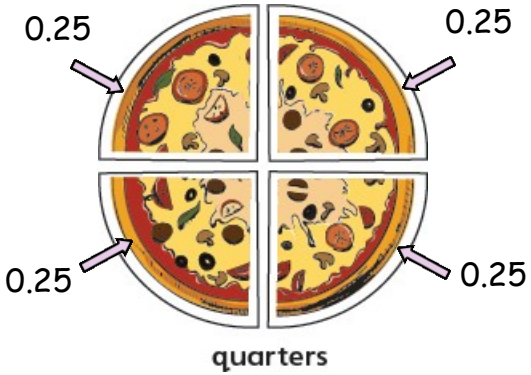
$\frac{1}{2} \div 3 = \frac{1}{6}$

Keep it, change it, flip it!

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

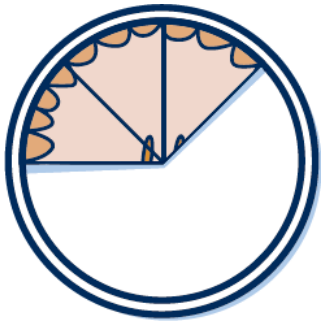
Associate fractions with division and calculate decimal fraction equivalents.

Concrete



Pictorial

3 slices of pie 'out of' 8



$\frac{3}{8}$

Abstract

$\frac{3}{8}$

3 'out of' 8 is the same as 3 'divided by' 8

$3 \div 8 = 0{\cdot}375$

So $\frac{3}{8} = 0{\cdot}375$