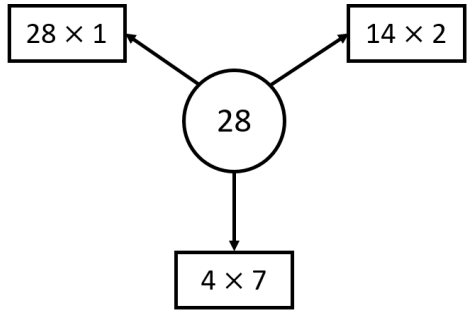
Year 4
Multiplication and Division B

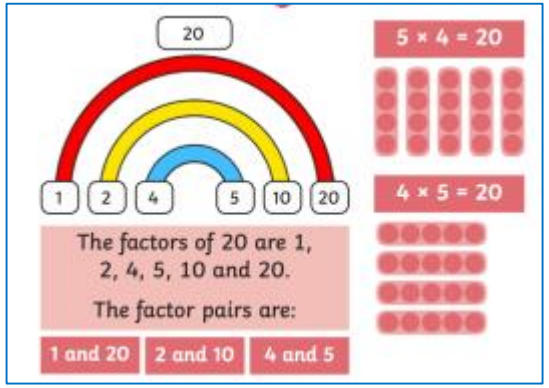
Factor pairs

A factor is a number that divides into another number exactly, without leaving a remainder.



28 has 3 factor pairs.

28 has 6 factors altogether.



Multiplying by 10 and 100

Th	H	T	O
		7	8

Th	H	T	O
	7	8	0

78 × 10 = 780

Th	H	T	O
7	8	0	0

78 × 100 = 7,800

1) To multiply a number by 10 each digit moves 1 to the left on a place value grid.

2) To multiply a number by 100 each digit moves 2 to the left on a place value grid.

1) To divide a number by 10 each digit moves 1 to the right on a place value grid.

2) To divide a number by 100 each digit moves 2 to the right on a place value grid.

TTh	Th	H	T	O
4	7	0	0	0

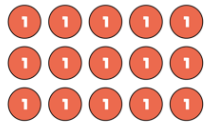
TTh	Th	H	T	O
	4	7	0	0

47,000 ÷ 10 = 4,700

TTh	Th	H	T	O
		4	7	0

47,000 ÷ 100 = 470

Related facts



3 × 5 ones = 15 ones
= 15

3 × 5 tens = 15 tens
= 150

3 × 5 hundreds = 15 hundreds
= 1,500

Vocabulary

Factors factor pair
multiply product
lots of
divide dividing
share equally remainder
array systematically
10 times the size of
place value chart
base 10
tenth hundredth
partition
short multiplication
column
represent exchange
possibilities
combination efficient

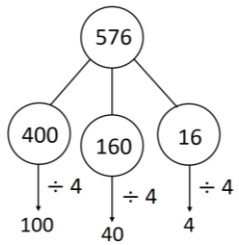
Multiplication and division

251 × 3 = 753

H	T	O
200 200	50 50 50	1
200 200	50 50 50	1
200 200	50 50 50	1
100		

	H	T	O
	2	5	1
×			3
	7	5	3
	1		

576 ÷ 4 = 144



100 + 40 + 4 = 144

There are 69 tennis balls packed in tubes of 3.

There are 23 tubes altogether.

69		
23	23	23

69 ÷ 3 = 23

$$3\overline{)69}\quad 23$$

Tens	Ones

Measure in Kilometres and metres

Year 4
Length and Perimeter

Perimeter is the length around a closed 2-D shape.

kilometres	(km)
metres	(m)
centimetres	(cm)
millimetres	(mm)

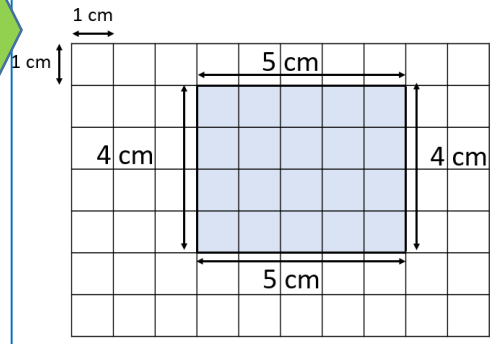
Vocabulary
Kilometres km
metres m
partition measure
greater less length
equivalent half
converting perimeter
side width length
rectangle rectilinear
regular polygon equal
equivalent triangle
irregular

Which unit would you use to measure each item?

Kilometres	Metres	Centimetres
Distance between two cities	Height of a house	Length of a pencil case

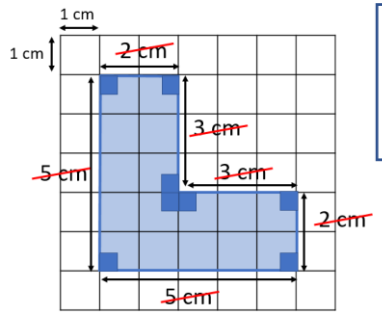
Perimeter

Work out the perimeter of the rectangle.



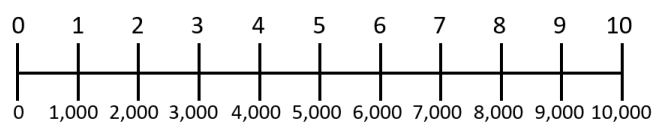
5 cm + 4 cm + 5 cm + 4 cm = 18 cm

Work out the perimeter of the rectilinear shape.



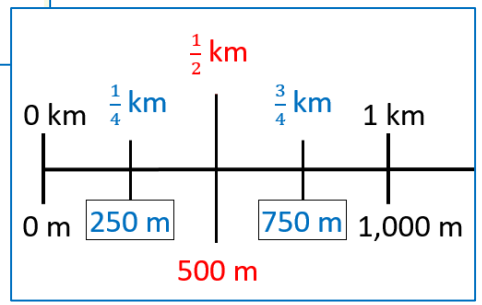
A rectilinear shape has straight sides that meet at right angles.

2 cm + 3 cm + 3 cm + 2 cm + 5 cm + 5 cm = 20 cm

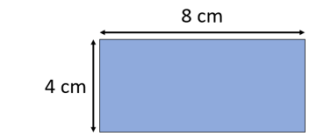


1 km = 1,000 m
10 km = 10,000 m

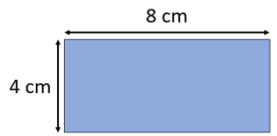
There are 1,000 metres in 1 kilometre.



Which method do you prefer?



8 cm + 4 cm = 12 cm
12 cm × 2 = 24 cm

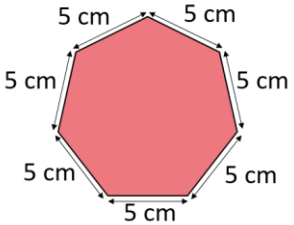


8 cm + 8 cm = 16 cm
4 cm + 4 cm = 8 cm
16 cm + 8 cm = 24 cm

Perimeter of regular polygons

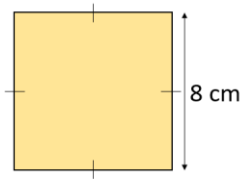
A polygon is a **closed shape** made of **straight lines**

What is the perimeter of the regular polygon?



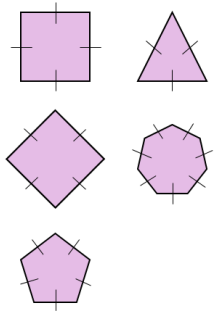
7 × 5 cm = 35 cm

What is the perimeter of the shape?



Each side is 8 cm.
There are 4 sides, so the perimeter of the polygon is 4 × 8 cm = 32 cm

Regular polygons

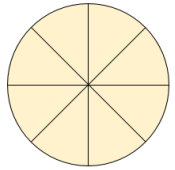


- All sides are equal in length.
- All angles are equal in size.

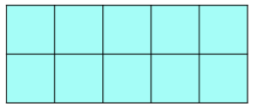
Year 4
Fractions (page 1)

Understanding the whole

The whole has been divided into 8 equal parts.



Each part is worth $\frac{1}{8}$



What fraction of the shape is shaded? $\frac{10}{10}$

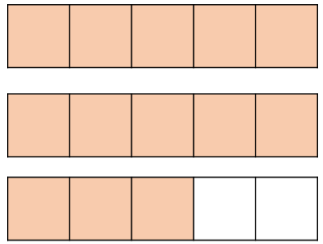
The whole of the shape is shaded.

If the numerator and denominator are equal, it is equal to a whole. E.g. $\frac{3}{3} = 1$ or $\frac{7}{7} = 1$

What fraction of the shape is shaded? $\frac{3}{5}$

What fraction of the shape is not shaded? $\frac{2}{5}$

Mixed Numbers



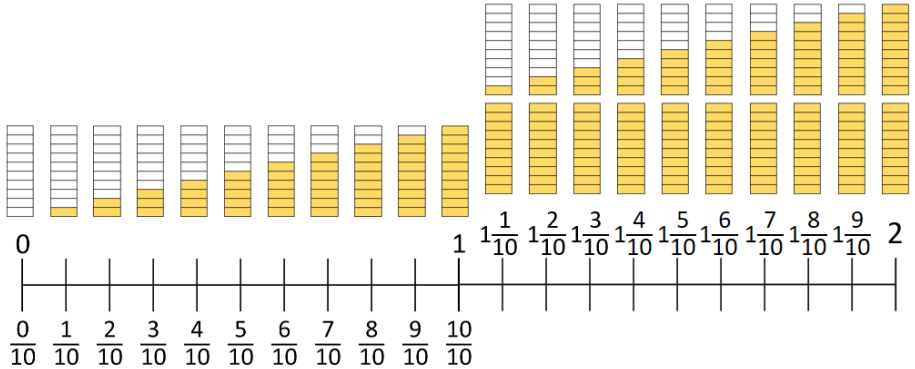
A mixed number is a whole number and a proper fraction.

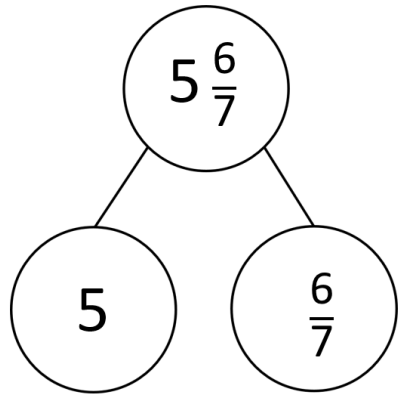
There are 2 wholes.

There are $\frac{3}{5}$

The mixed number is $2\frac{3}{5}$

Counting beyond one

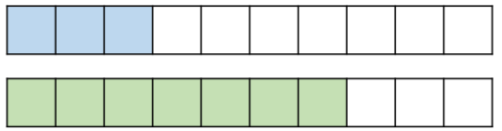




$5\frac{6}{7}$ can be partitioned into 5 wholes and $\frac{6}{7}$

Comparing Fractions and Mixed Numbers

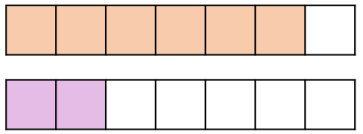
$\frac{3}{10} < \frac{7}{10}$



$\frac{3}{10}$ is smaller than $\frac{7}{10}$

When the denominators are the same, the smaller the numerator, the smaller the fraction.

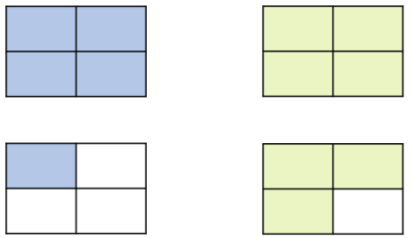
$\frac{6}{7} > \frac{2}{7}$



$\frac{6}{7}$ is greater than $\frac{2}{7}$

When the denominators are the same, the greater the numerator, the greater the fraction.

Which fraction is smaller, $1\frac{1}{4}$ or $1\frac{3}{4}$?



$1\frac{1}{4} < 1\frac{3}{4}$

Vocabulary

whole
divided
equal parts
denominator
numerator
unit fractions
non-unit fractions
mixed numbers
partitioning
number line
interval
greater
integer
improper
fraction
equivalent
add
subtract

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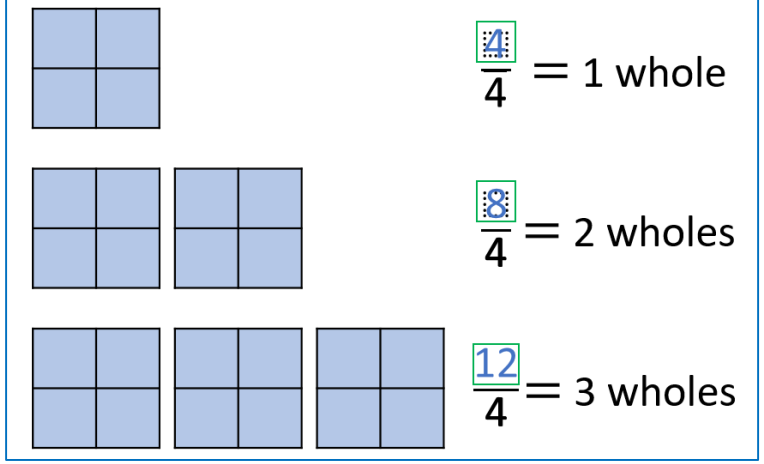
Year 4
Fractions (page 2)

Improper fractions

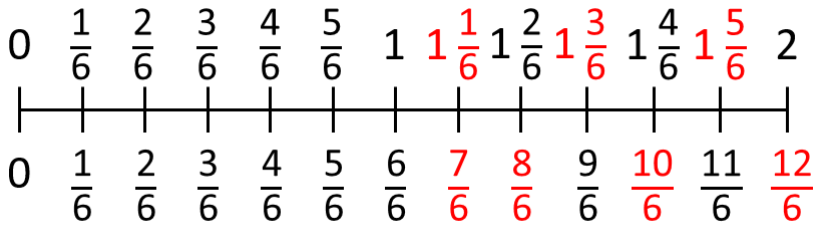
An **improper fraction** is a fraction that has a numerator that is greater than or equal to the denominator.



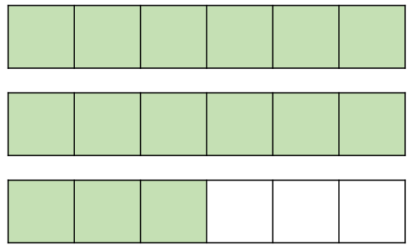
$\frac{4}{4}$ = 1 whole

$\frac{8}{4}$ = 2 wholes

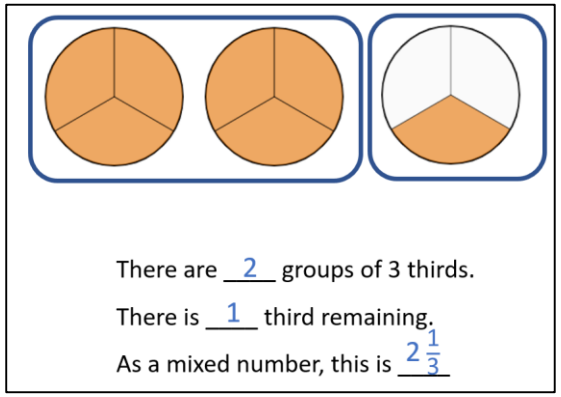
$\frac{12}{4}$ = 3 wholes



Convert mixed numbers to improper fractions



The integer in the mixed number is __2__
This is equivalent to __12__ sixths.
There are __3__ more sixths.
__12__ sixths + __3__ sixths = __15__ sixths
so the improper fraction is $\frac{15}{6}$



There are __2__ groups of 3 thirds.
There is __1__ third remaining.
As a mixed number, this is $2\frac{1}{3}$

Equivalent fractions

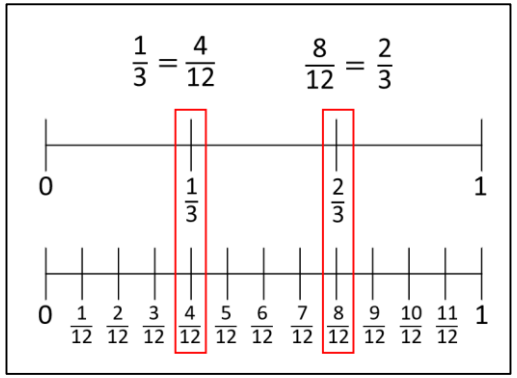
equivalent

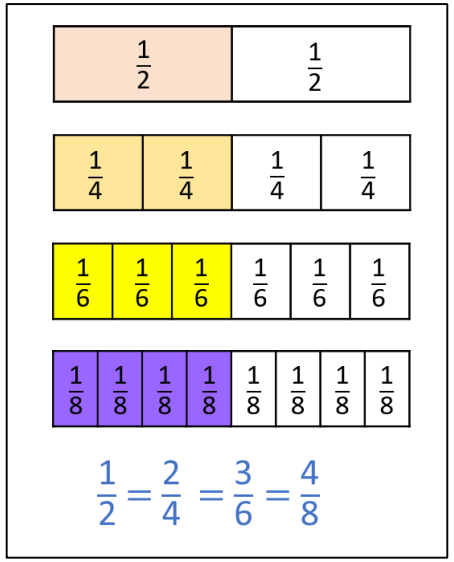
"of equal value, amount or meaning"

are equivalent to

3 + 3 is equivalent to 5 + 1

1 cm is equivalent to 10 mm





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

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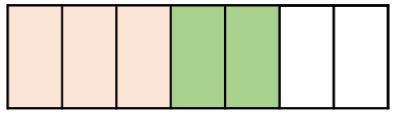
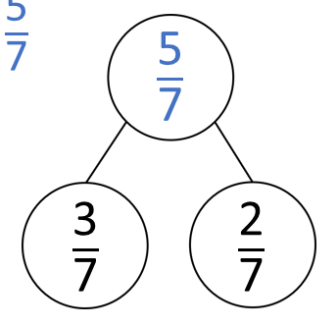
Year 4
Fractions (page 3)

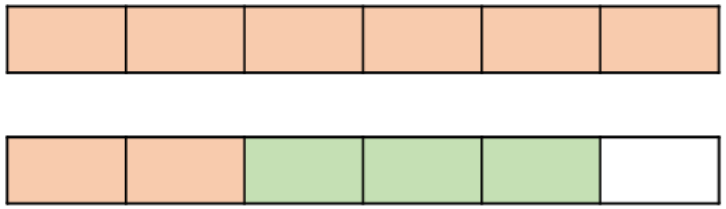
Adding fractions and mixed numbers

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





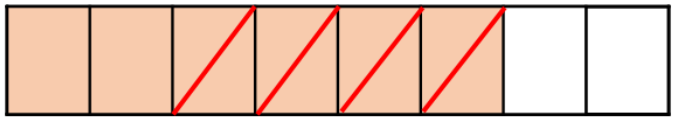
$1\frac{2}{6} + \frac{3}{6} = 1\frac{5}{6}$



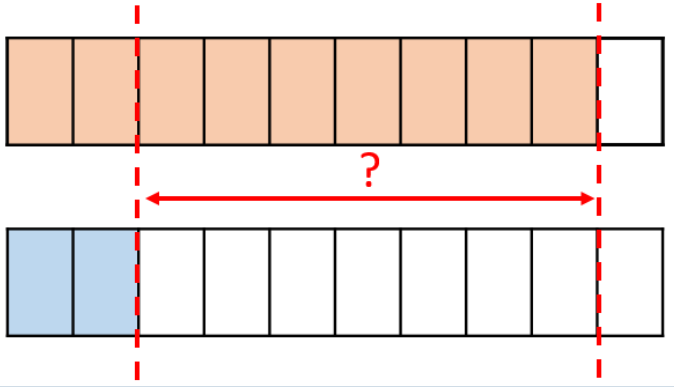
When adding or subtracting fractions, the denominators must be the same.

Subtracting fractions

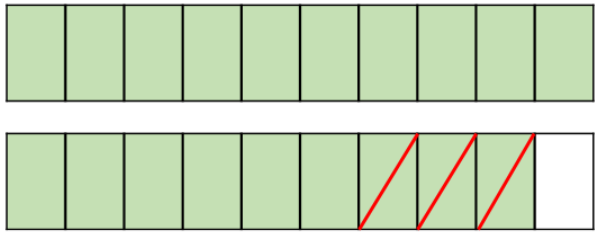
$\frac{6}{8} - \frac{4}{8} = \frac{2}{8}$



$\frac{9}{10} - \frac{2}{10} = \frac{7}{10}$

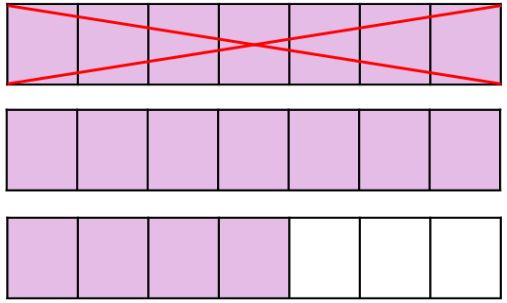


$1\frac{9}{10} - \frac{3}{10} = 1\frac{6}{10}$



Subtract from mixed numbers

$2\frac{4}{7} - 1 = 1\frac{4}{7}$



When I subtract a whole number from a mixed number, the fraction stays the same.

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Fractions and tenths

Year 4
Decimals A (page 1)

Vocabulary
Fraction
tenth
hundredth
divided
equal part
decimal
decimal point
exchange
whole
equivalent
intervals
'10 times the size of'
'one-tenth the size of'
gattegno chart

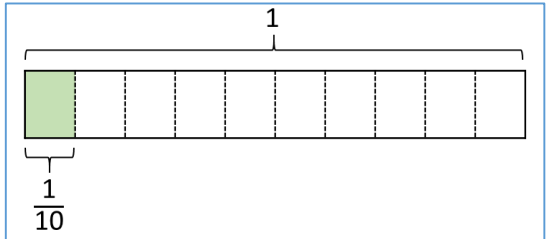
What fraction of the flowers are blue?

There are 10 flowers altogether.

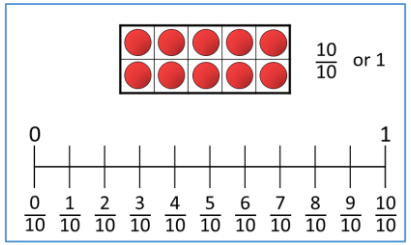
3 out of 10 flowers are blue.

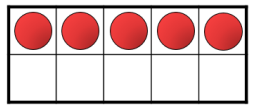
$\frac{3}{10}$ of the flowers are blue.

This is a non-unit fraction.



When a whole is split into ten equal parts, one of those parts is worth $\frac{1}{10}$

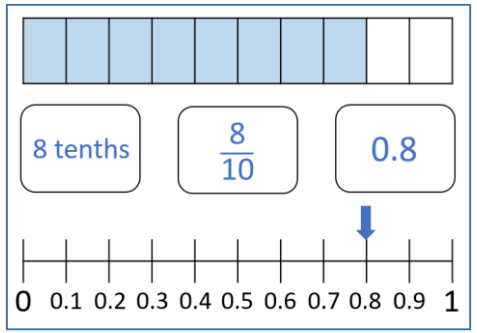




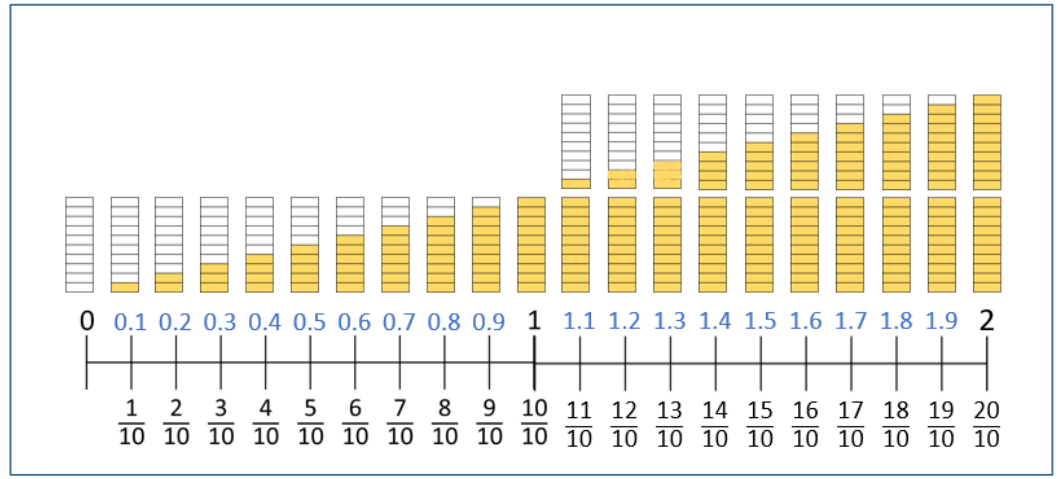
What fraction is shown?

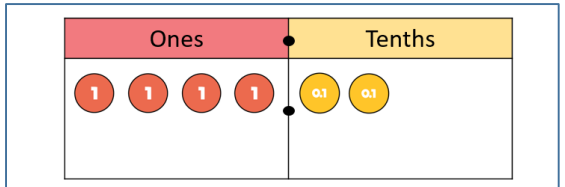
$\frac{5}{10} = \frac{1}{2}$

Tenths as decimals



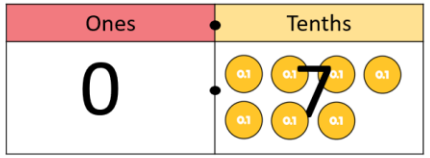
$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{9}{10}$	$\frac{10}{10}$
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0





There are 4 ones and 2 tenths.

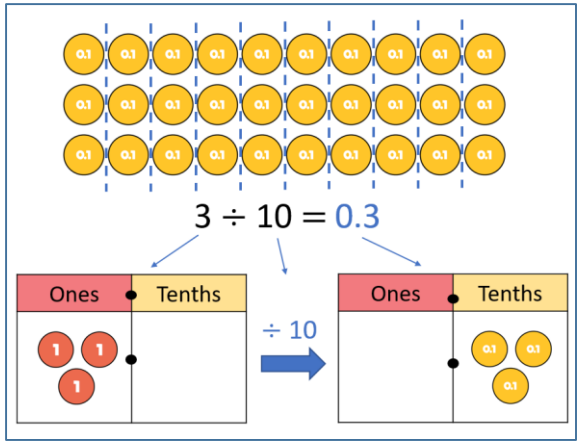
4 ones + 2 tenths = 4 + 0.2 = 4.2

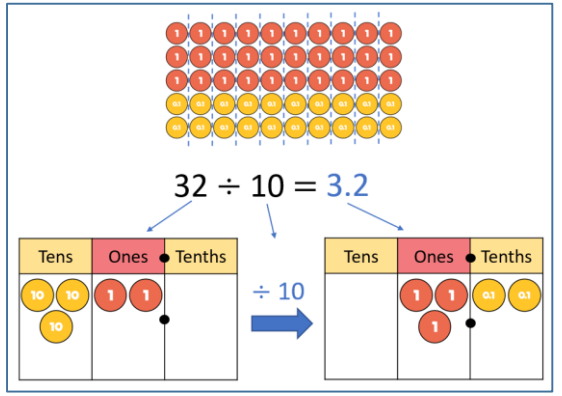


There are 0 ones and 7 tenths.

0 ones + 7 tenths = 0 + 0.7 = 0.7

Dividing by 10

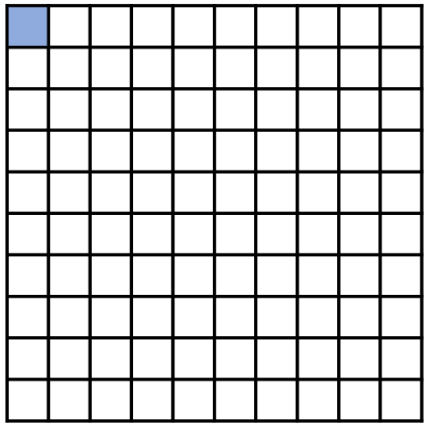




Walmsley C.E. Primary School
Where getting better never stops

Year 4
Decimals A (page 2)

Hundredths as fractions

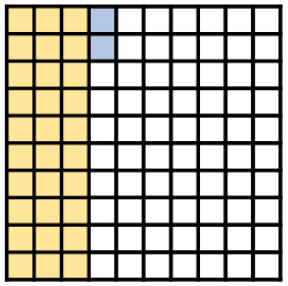


There are 100 small squares.

One square is shaded blue.

One out of 100 is shaded blue.

$\frac{1}{100}$ is shaded blue.

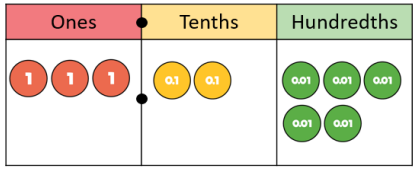


$\frac{32}{100}$

$\frac{30}{100}$ $\frac{2}{100}$

Hundredths as decimals

What number is represented in the place value chart?



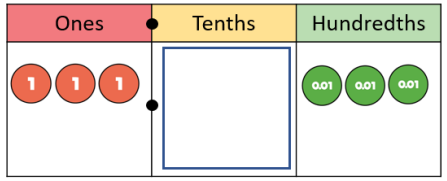
There are 3 ones.

There are 2 tenths.

There are 5 hundredths.

The number represented is 3.25

What number is represented in the place value chart?



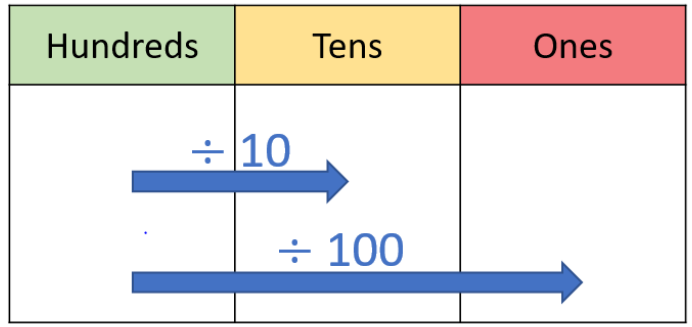
There are 3 ones.

There are 0 tenths.

There are 3 hundredths.

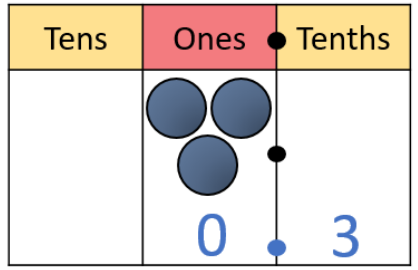
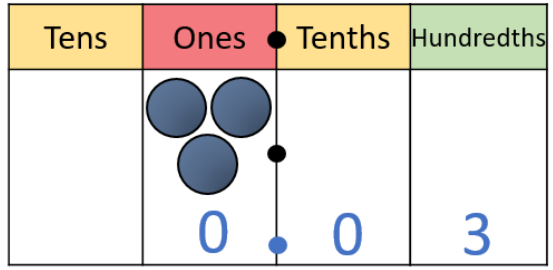
The number represented is 3.03

Dividing by 100



When dividing a number by 100, move all the digits _two_ places to the _right_ .

$3 \div 10 = 0.3$



$3 \div 100 = 0.03$