Winton's Mathematical Methods and Calculation Policy

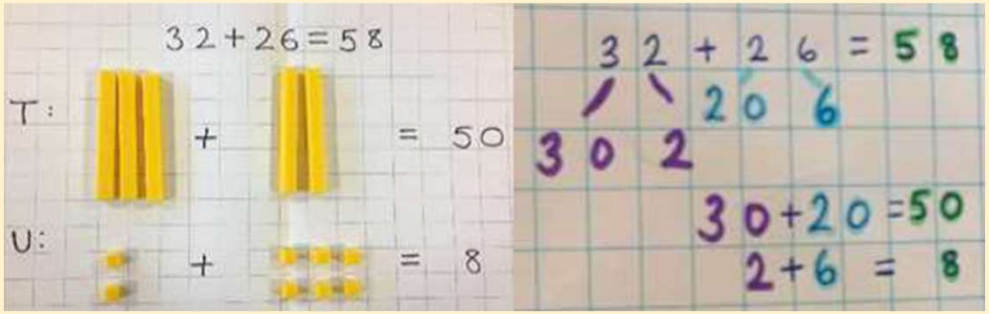
Year 5 and 6

Addition +

Vocabulary

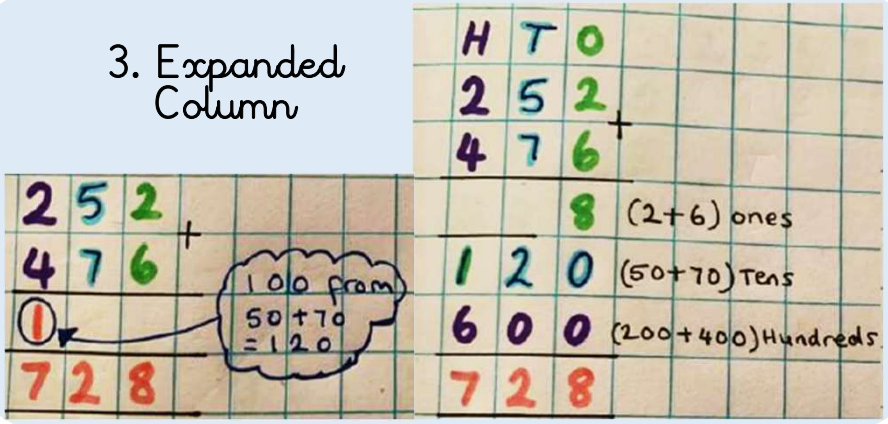
add
addend
total
increase
more
plus
make
sum
altogether
estimate
number bonds

1. Partitioning

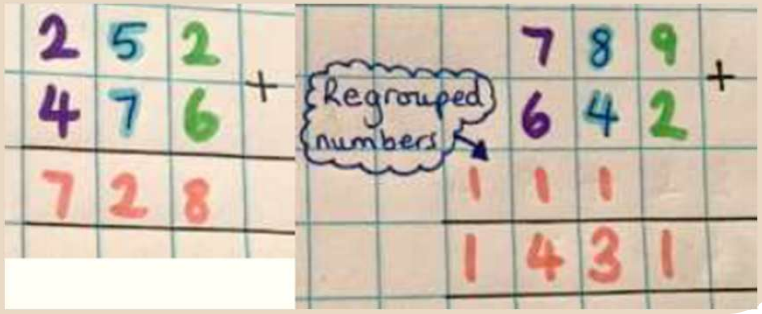


2. Expanded Partitioning Column

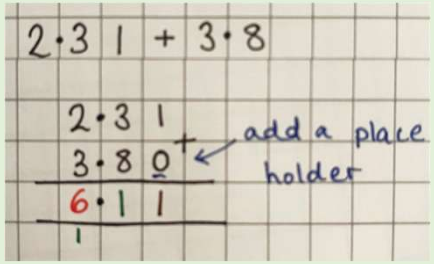
3. Expanded Column



4. Compact column



5. Column: Decimals

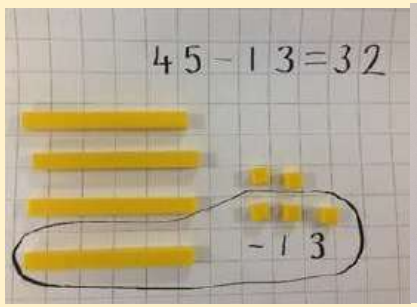


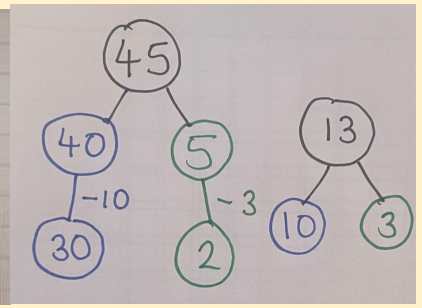
Subtraction

Vocabulary

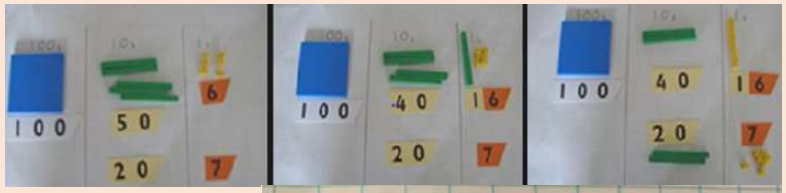
subtract
subtraction
total
decrease
less
minus
amount
estimate
difference
number bonds

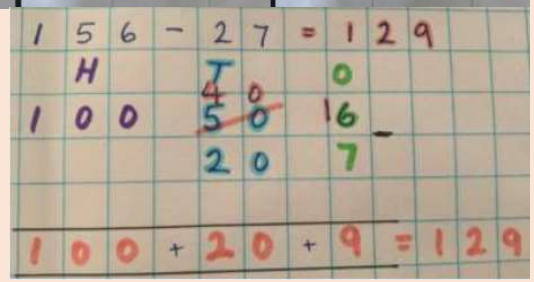
1. Partitioning



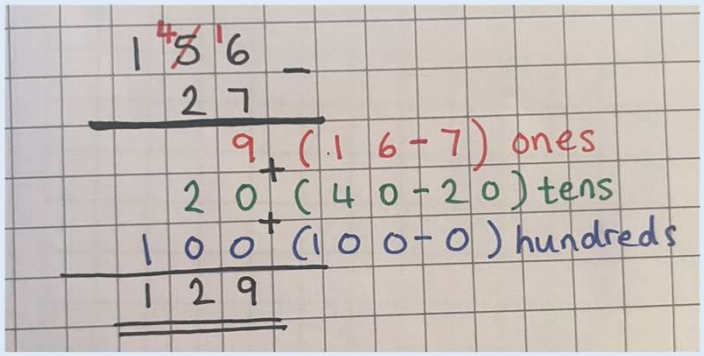


2. Expanded Partitioning Column

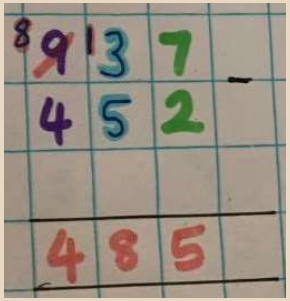




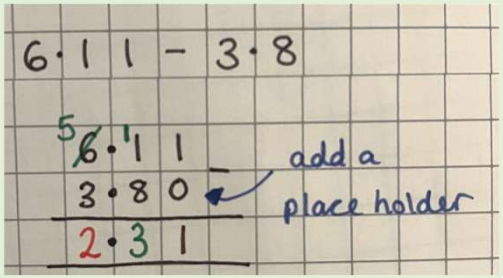
3. Expanded Column



4. Compact column



5. Column: Decimals



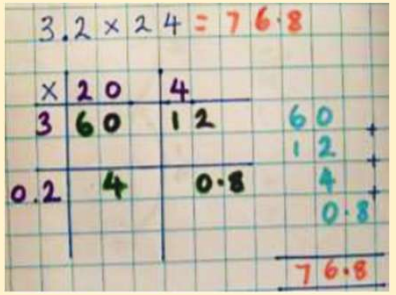
Multiplication ✖

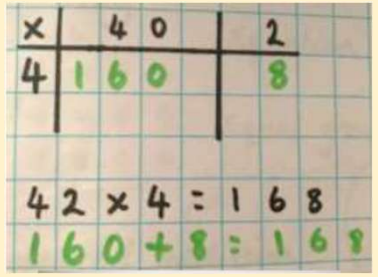
×	0	1	2	3	4	5	6	7	8	9	10	11	12	13	100	50	25
3											30				300	150	75

Vocabulary

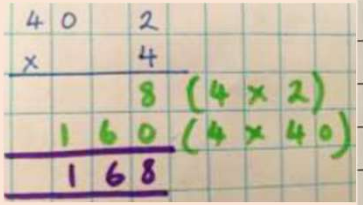
multiply
multiplier
multiplicand
product
lots of
inverse
derive
factors
common factors
multiples
common multiples
composite numbers
prime numbers
prime factors
square numbers
cubed numbers
convert

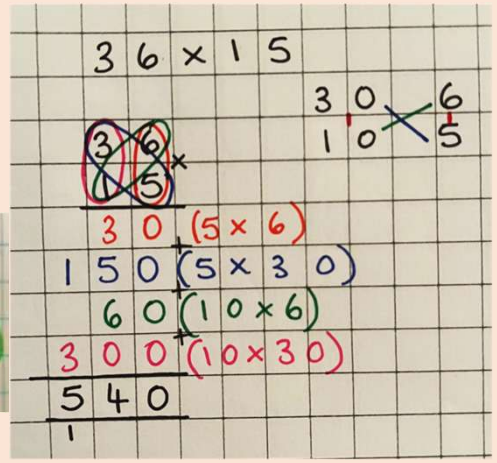
1. Grid Method



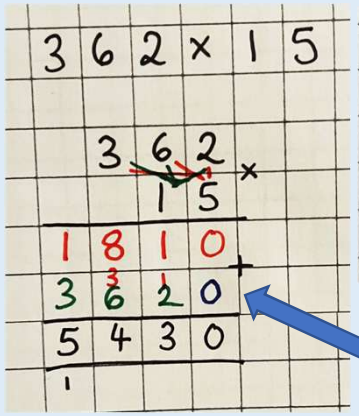


2. Expanded Column

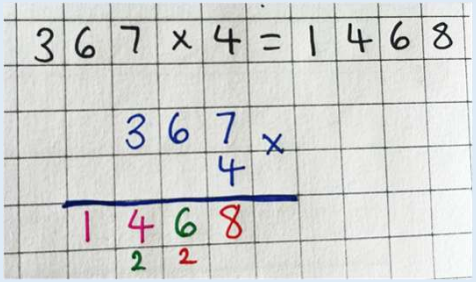




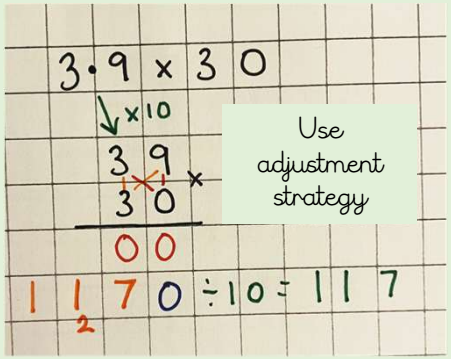
3. Short column



'Be a hero, add a 0'



4. Short column: Decimals



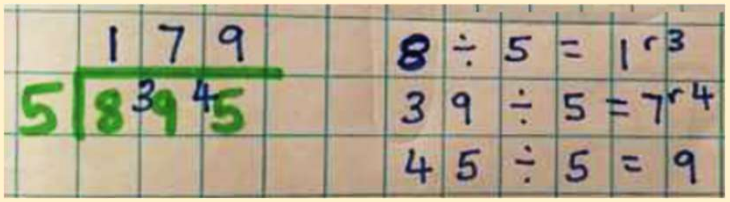
Use adjustment strategy

Division ÷

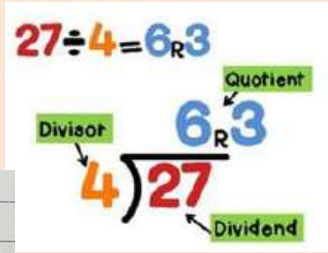
Vocabulary

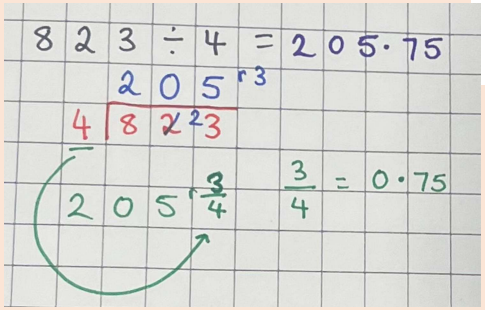
divisor
dividend
quotient
share
equal
groups of
inverse
derive
factors
common factors
multiples
prime factors
common multiples
composite numbers
prime numbers
convert

1. Short (Bus Stop)

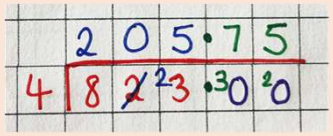


2. Short (Bus Stop) with remainders



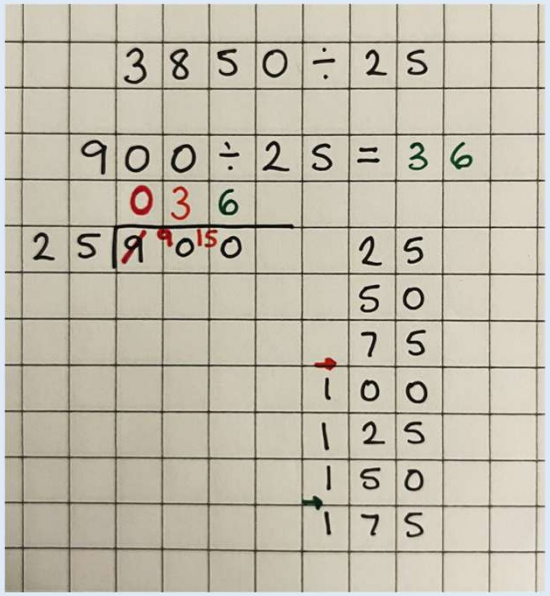


Using known facts

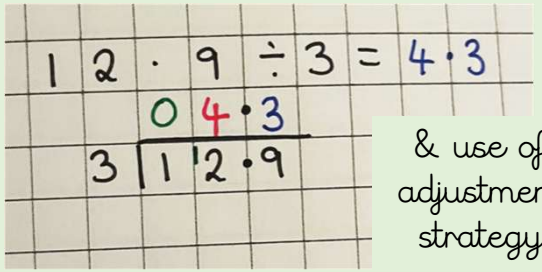


Formal with decimal point and place holders

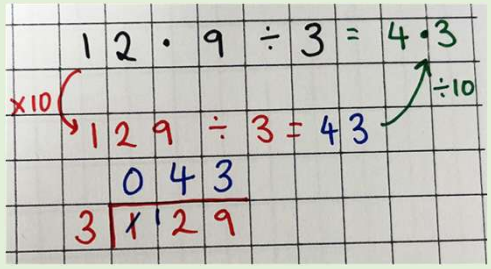
3. Short (Bus Stop): 2 digit divisors



4. Short (Bus Stop): Decimals



& use of adjustment strategy

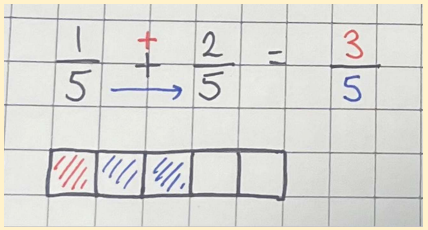


Fractions +

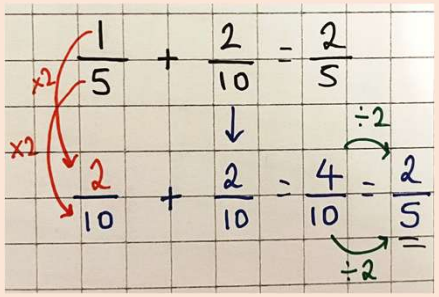
Vocabulary

numerator
denominator
unit fraction
non-unit fraction
equivalence
equivalent
proper fractions
improper fractions
mixed numbers
simplify
tenths
hundredths
percentage
ratio
proportion
number of parts

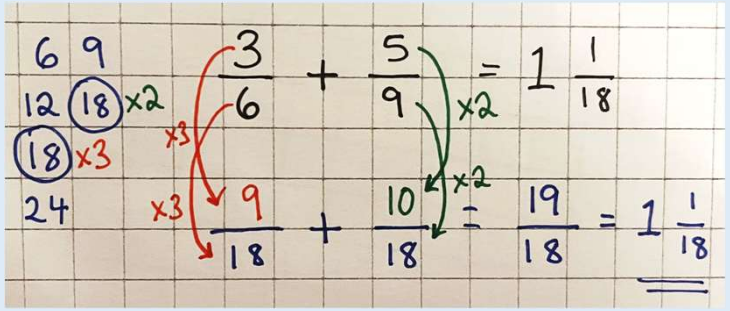
1. Common (same) denominator



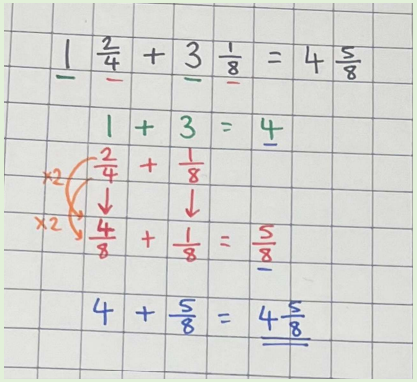
2. Different denominators – finding common multiples (change one)



3. Different denominators – finding common multiples (change both)



4. Mixed numbers

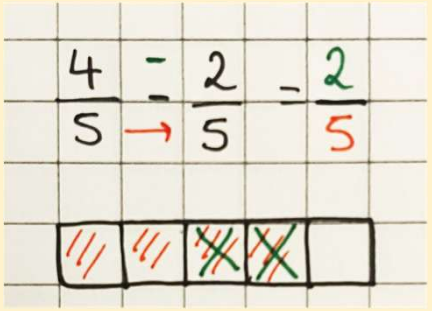


Fractions [redacted]

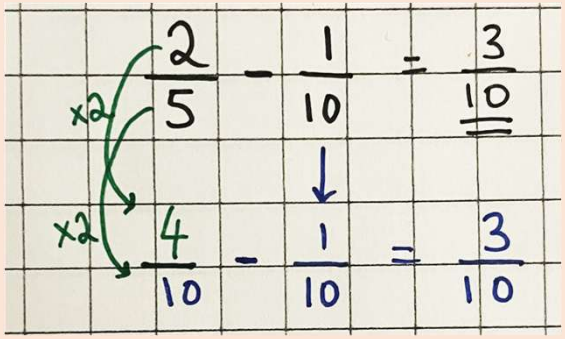
Vocabulary

numerator
denominator
unit fraction
non-unit fraction
equivalence
equivalent
proper fractions
improper fractions
mixed numbers
simplify
tenths
hundredths
percentage
ratio
proportion
number of parts

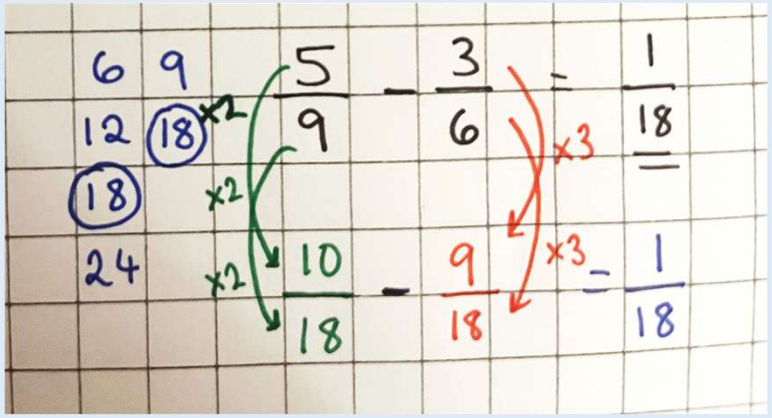
1. Common (same) denominator



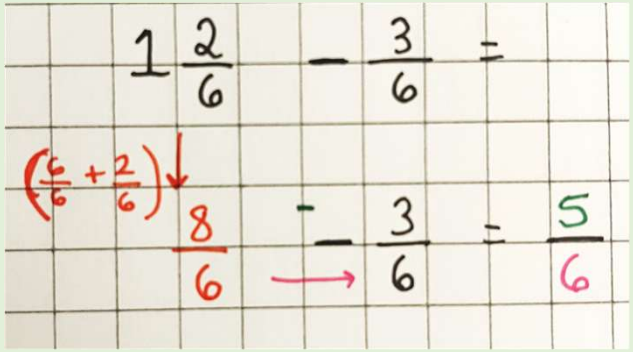
2. Different denominators – finding common multiples (change one)



3. Different denominators – finding common multiples (change both)



4. Mixed numbers

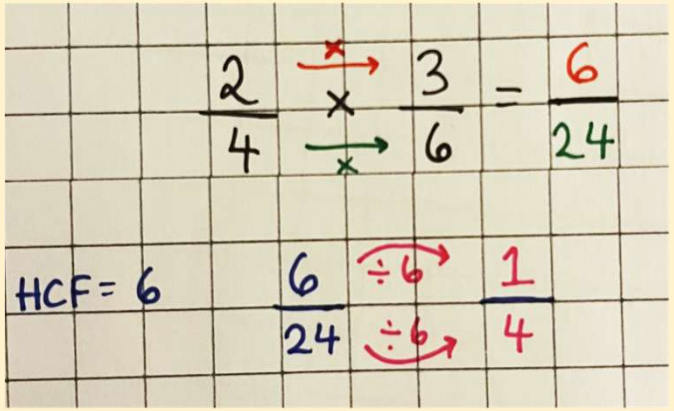


Fractions ✖

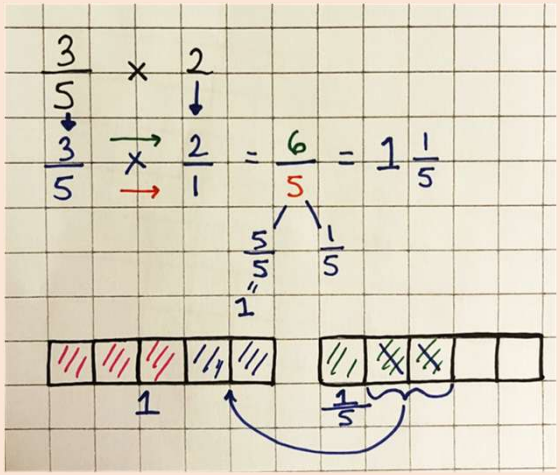
Vocabulary

numerator
denominator
unit fraction
non-unit fraction
equivalence
equivalent
proper fractions
improper fractions
mixed numbers
simplify
tenths
hundredths
percentage
ratio
proportion
number of parts

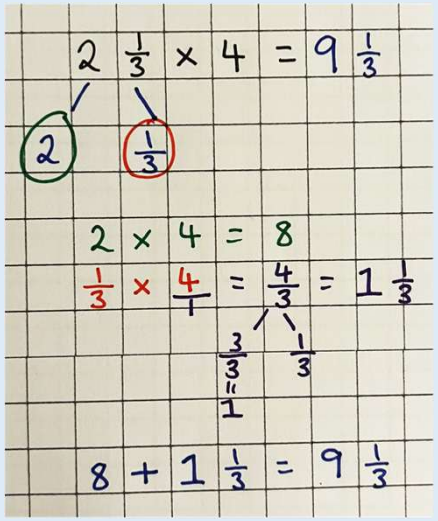
1. Multiplying fractions



2. Multiplying fractions by whole numbers



3. Multiplying mixed numbers by whole numbers



Fractions ÷

Vocabulary

numerator
denominator
unit fraction
non-unit fraction
equivalence
equivalent
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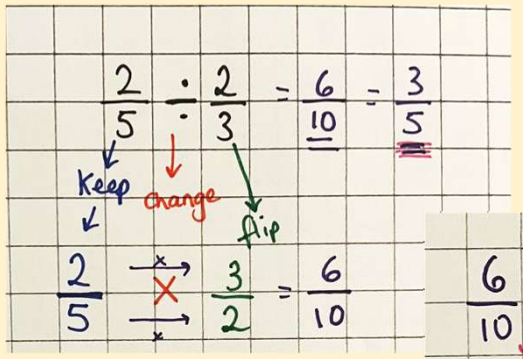
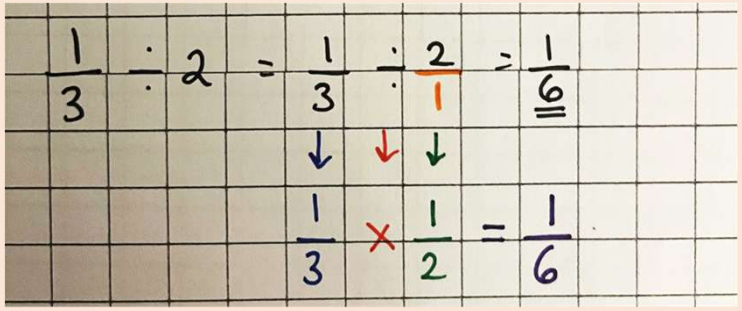
improper fractions
mixed numbers
simplify
tenths
hundredths
percentage
ratio
proportion
number of parts

1. Dividing fractions by fractions



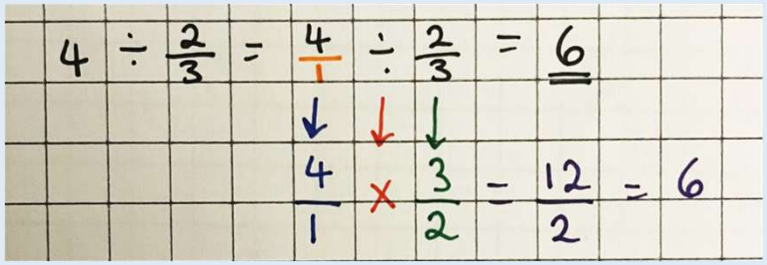
Simplifying answers if possible

2. Dividing fractions by whole numbers



1. Keep 2. Change 3. Flip

3. Dividing fractions by whole numbers and simplifying the answer



Answers that can be converted to a whole number, must be converted.

Number Facts

$8 \times 10 = 80$

$80 \times 10 = 800$

$8 \times 100 = 800$

1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

× 100 (from 1 to 100) × 10 (from 100 to 1,000) × 10 (from 10 to 100)

$8 \times 10 \times 10 = 8 \times 100$

$1{,}200 \div 10 = 120$

$120 \div 10 = 12$

$1{,}200 \div 100 = 12$

1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

÷ 100 (from 1,000 to 10) ÷ 10 (from 1,000 to 100) ÷ 10 (from 100 to 10)

Multiplying and Dividing by 10, 100 and 1000

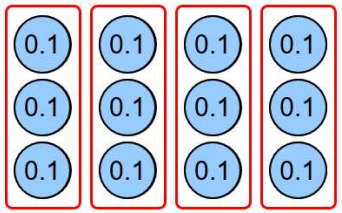
10 000	1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Multiplying

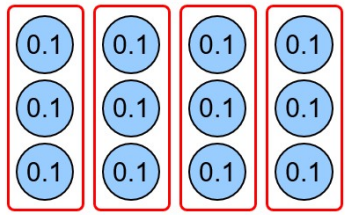
X 10 digits move LEFT **1** space
X 100 digits move LEFT **2** spaces
X 1000 digits move LEFT **3** spaces

Dividing

÷ 10 digits move RIGHT **1** space
÷ 100 digits move RIGHT **2** spaces
÷ 1000 digits move RIGHT **3** spaces



4 × 3 = 12
4 × 3 tenths = 12 tenths
4 × 0.3 = 1.2



12 ÷ 4 = 3
12 tenths ÷ 4 = 3 tenths
1.2 ÷ 4 = 0.3

Number Facts

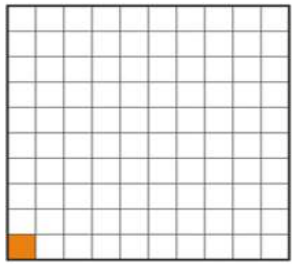
100				
50		50		
25	25	25	25	
20	20	20	20	20

x 100

÷ 100

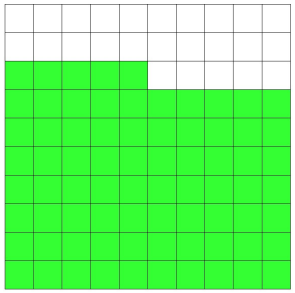
10,000				
5,000		5,000		
2,500	2,500	2,500	2,500	
2,000	2,000	2,000	2,000	2,000

1				
0.5		0.5		
0.25	0.25	0.25	0.25	
0.20	0.20	0.20	0.20	0.20

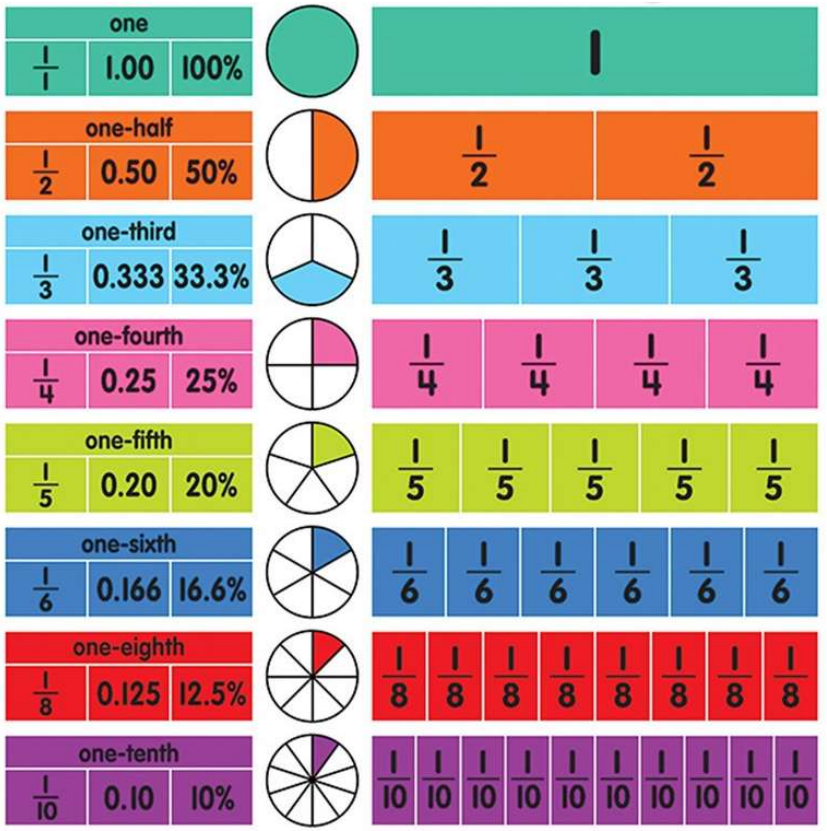


$$1\% = \frac{1}{100} = 0.1$$

$$75\% = \frac{75}{100} = \frac{3}{4}$$ (÷25)



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



18		
6	6	6

18					
3	3	3	3	3	3

6 × 3 = 18

3 × 6 = 18

18 ÷ 6 = 3

18 ÷ 3 = 6

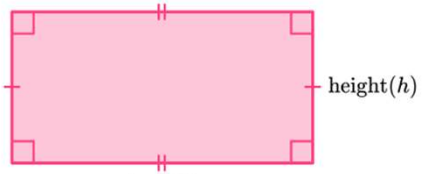
$\frac{1}{6}$ of 18 = 3

$\frac{1}{3}$ of 18 = 6

The **area of a rectangle** is the amount of space inside the rectangle.

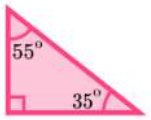
$\text{Area} = 7 \times 4$
$= 28\text{m}^2$

$\text{Area} = \text{base} \times \text{height}$

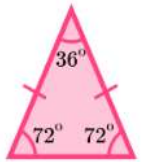


Angles in a triangle refers to the sum (total) of the angles at each vertex in a triangle. The sum of the interior angles of a triangle is **180°.**

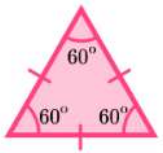
E.g.



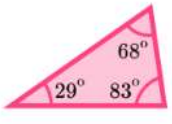
Right angled triangle
One right angle
90+55+35 = 180°



Isosceles triangle
Two equal sides & angles
72+72+36 = 180°



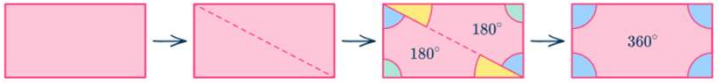
Equilateral triangle
Three equal sides & angles
60+60+60 = 180°



Scalene triangle
All sides & angles different
83+68+29 = 180°

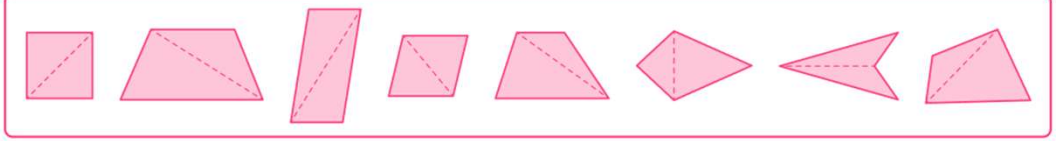
Quadrilateral angles are the four angles that occur at each **vertex** within a four-sided shape; these angles are called **interior angles of a quadrilateral**.

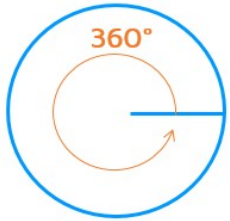
The sum of the interior angles of a quadrilateral is 360°.
You can prove this using the angle sum of a triangle.

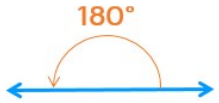


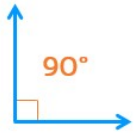
Quadrilateral angles add to equal 360°.

This is the same for all types of quadrilaterals:







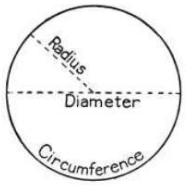


360 ÷ 2 = 180

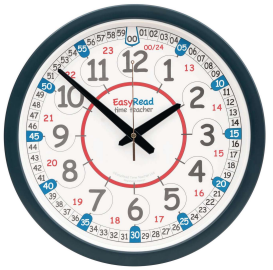
$\frac{1}{2}$ of 360 = 180

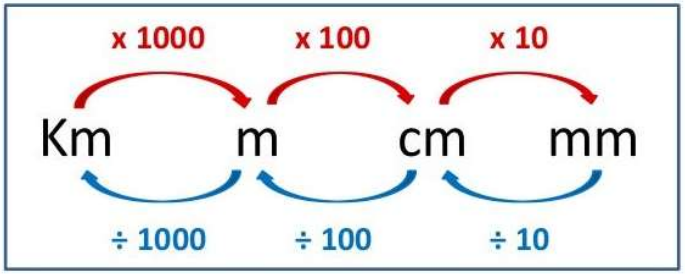
Diameter = 2 x radius

Radius = $\frac{1}{2}$ diameter



1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds





5km = ? m **Need to x 1000** 5 x 1000 = **5000m** ✓

120cm = ? m **Need to ÷ 100** 120 ÷ 100 = **1.2m** ✓

1cm = 10mm
1m = 100cm
1km = 1000m
1kg = 1000g
1l = 1000ml