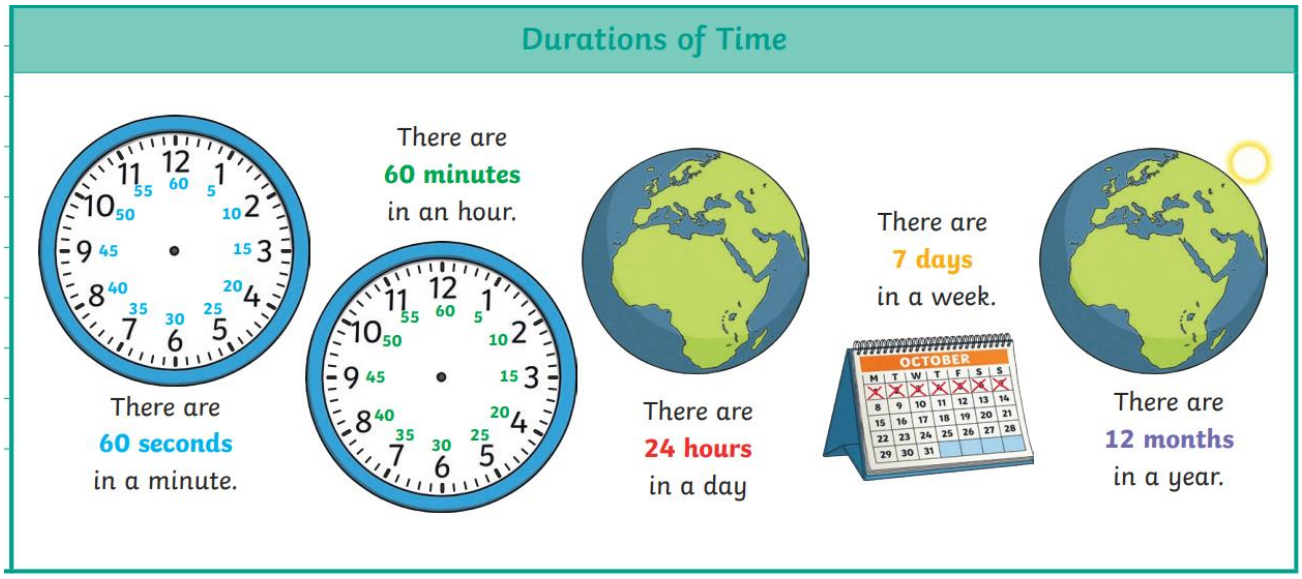
# Time 'Learn by Heart' Facts (PART I)

Children in Year 4, need to understand the following durations of time:

- 60 seconds = 1 minute
- 60 minutes = 1 hour
- 30 minutes = ½ hour
- 45 minutes = ¾ hour
- 15 minutes = ¼ hour
- 24 hours = 1 day
- 7 days = 1 week
- 14 days = a fortnight
- 52 weeks = 1 year
- 365 days = 1 year (366 in a leap year)
- A leap year happens every four years: February has 29 days in a leap year.



# Time Learn by Heart Facts (PART 2)

Children in Year 4 need to understand 24 hour time and the various ways to represent this (using digital and analogue time). Can your child memorise and understand the facts below?

## 24-Hour Time

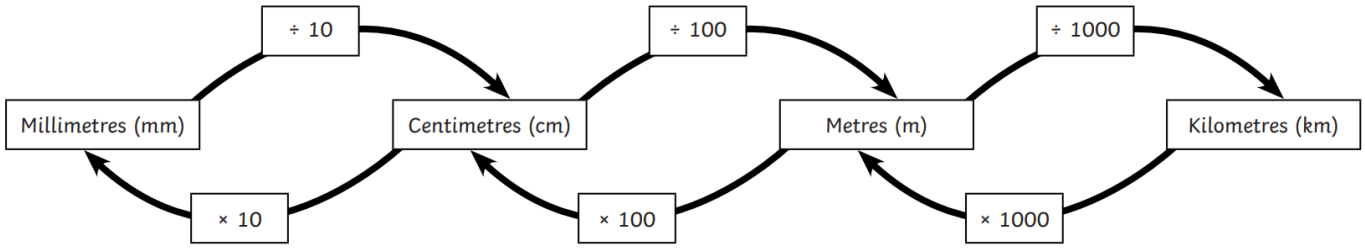
| | | | |
|---|---|---|---|
|  | 01:00 | 1 a.m. | 1 o'clock |
|  | 02:00 | 2 a.m. | 2 o'clock |
|  | 03:00 | 3 a.m. | 3 o'clock |
|  | 04:00 | 4 a.m. | 4 o'clock |
|  | 05:00 | 5 a.m. | 5 o'clock |
|  | 06:00 | 6 a.m. | 6 o'clock |
|  | 07:00 | 7 a.m. | 7 o'clock |
|  | 08:00 | 8 a.m. | 8 o'clock |
|  | 09:00 | 9 a.m. | 9 o'clock |
|  | 10:00 | 10 a.m. | 10 o'clock |
|  | 11:00 | 11 a.m. | 11 o'clock |
|  | 12:00 | 12 p.m. | 12 o'clock |

| | | | |
|---|---|---|---|
|  | 13:00 | 1 p.m. | 1 o'clock |
|  | 14:00 | 2 p.m. | 2 o'clock |
|  | 15:00 | 3 p.m. | 3 o'clock |
|  | 16:00 | 4 p.m. | 4 o'clock |
|  | 17:00 | 5 p.m. | 5 o'clock |
|  | 18:00 | 6 p.m. | 6 o'clock |
|  | 19:00 | 7 p.m. | 7 o'clock |
|  | 20:00 | 8 p.m. | 8 o'clock |
|  | 21:00 | 9 p.m. | 9 o'clock |
|  | 22:00 | 10 p.m. | 10 o'clock |
|  | 23:00 | 11 p.m. | 11 o'clock |
|  | 00:00 | 12 a.m. | 12 o'clock |

## Measure (LENGTH) 'Learn by Heart' Facts

Children in Year 4 need to know the following units of measure conversions and HOW to convert between the units of measure (see diagram):

- 10 millimetres (mm) = 1 centimetre (cm)
- 100 cm = 1 metre (m)
- 1000 m = 1 kilometre (km)
- ½ metre = 50 cm = 0.5m
- ½ kilometre = 500 m = 0.5km
- ¼ metre = 25 cm = 0.25m
- ¼ kilometre = 250 m = 0.25km
- ¾ metre = 75 cm = 0.75m
- ¾ kilometre = 750 m = 0.75km

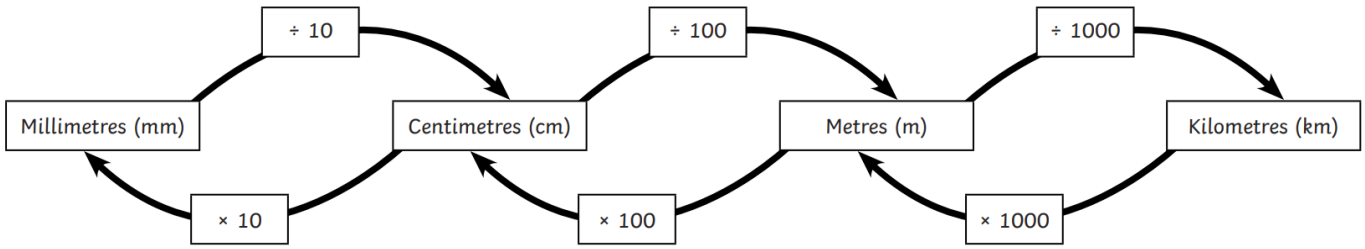




## Measure (LENGTH) 'Learn by Heart' Facts

Children in Year 4 need to know the following units of measure conversions and HOW to convert between the units of measure (see diagram):

- 10 millimetres (mm) = 1 centimetre (cm)
- 100 cm = 1 metre (m)
- 1000 m = 1 kilometre (km)
- ½ metre = 50 cm = 0.5m
- ½ kilometre = 500 m = 0.5km
- ¼ metre = 25 cm = 0.25m
- ¼ kilometre = 250 m = 0.25km
- ¾ metre = 75 cm = 0.75m
- ¾ kilometre = 750 m = 0.75km

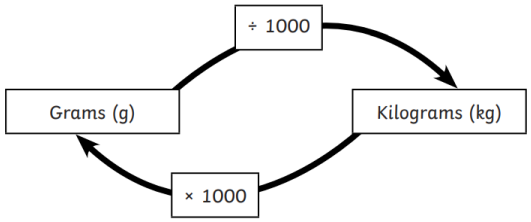
# Capacity and Weight (MASS) 'Learn by Heart' Facts

Children in Year 4 need to know the following units of measure conversions and HOW to convert between the units of measure (see diagram):

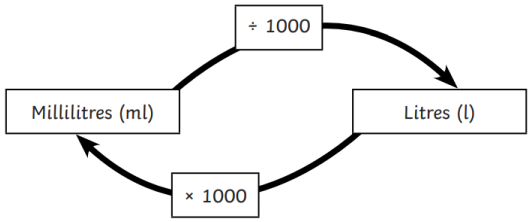
- 1000 millilitres = 1 litre
- ½ litre = 500 ml = 0.5l
- ¼ litre = 250 ml = 0.25l
- ¾ litre = 750 ml = 0.75l

- 1000 grams (g) = 1 kilogram (kg)
- ½ kg = 500 g = 0.5kg
- ¼ kg = 250 g = 0.25kg
- ¾ kg = 750 g = 0.75kg

**Mass**




**Capacity**





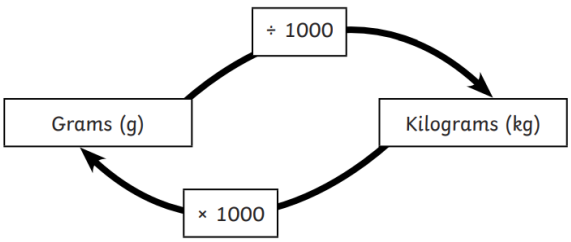
# Capacity and Weight (MASS) 'Learn by Heart' Facts

Children in Year 4 need to know the following units of measure conversions and HOW to convert between the units of measure (see diagram):

- 1000 millilitres = 1 litre
- ½ litre = 500 ml = 0.5l
- ¼ litre = 250 ml = 0.25l
- ¾ litre = 750 ml = 0.75l

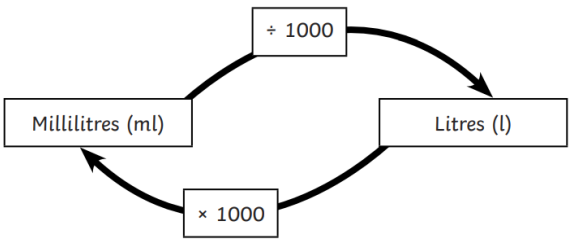
- 1000 grams (g) = 1 kilogram (kg)
- ½ kg = 500 g = 0.5kg
- ¼ kg = 250 g = 0.25kg
- ¾ kg = 750 g = 0.75kg

**Mass**



**Capacity**

# Roman Numerals 'learn by Heart' Facts

Children in Year 4 need to know and understand the Roman numerals 1-100. Using the conversion tables below, can you write different combinations of numbers that are NOT shown? For example, 41? 56?99?

| | |
|---|---|
| 1 | I |
| 2 | II |
| 3 | III |
| 4 | IV |
| 5 | V |
| 6 | VI |
| 7 | VII |
| 8 | VIII |
| 9 | IX |
| 10 | X |

| | |
|---|---|
| 11 | XI |
| 20 | XX |
| 30 | XXX |
| 40 | XL |
| 50 | L |
| 60 | LX |
| 70 | LXX |
| 80 | LXXX |
| 90 | XC |
| 100 | C |

# Rounding Whole Number to 10, 100 and 1000 'Learn by Heart Facts'

You will need to learn the rules for rounding whole numbers. Use the images and information below to support you with this. In class, you will be tested to round numbers (up to 4-digit) to the nearest 10, 100 and 1000 and so you will need to be prepared to be able to apply the rules to ANY NUMBER!

## Rounding

Look at the place value column to the right of the value you are rounding to. If this digit is a 4 or less, round down. If the digit is a 5 or more, round up.

**Rounding to nearest 10**

| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|

round down ← → round up

**Rounding to the nearest 100**

| 200 | 249 | 250 | 300 |
|---|---|---|---|

round down ← → round up

**Rounding to the nearest 1000**

| 2000 | 2499 | 2500 | 3000 |
|---|---|---|---|

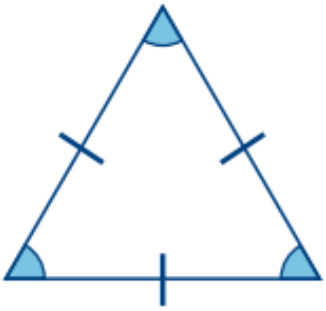
round down ← → round up


# Properties of Triangles 'Learn by Heart' Facts

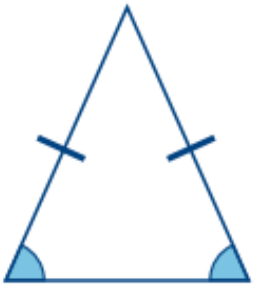
Children in Year 4 need to know the different types of triangles and their properties. They must understand that all angles in any triangle added together, total 180 degrees.

## Triangles

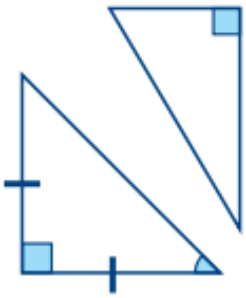
Triangles have 3 sides and 3 vertices. The total of the angles in a triangle is 180°.



An equilateral triangle is a regular polygon. It has sides of equal length and each angle is 60°.

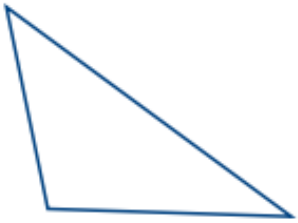


An isosceles triangle has two sides of equal length and two angles of equal size.



A right-angled triangle always has one 90° angle.

It can be isosceles or scalene.

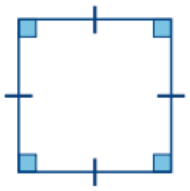


A scalene triangle has no equal sides or angles.

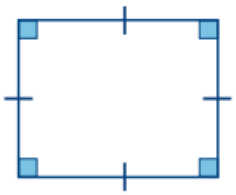
# Properties of Quadrilaterals 'Learn by Heart' Facts

Quadrilaterals are shapes with four sides. 'Quad' means four in Latin (the language used by the Romans). There are lots of different types of quadrilaterals and they are all linked in special ways. See the diagrams below!

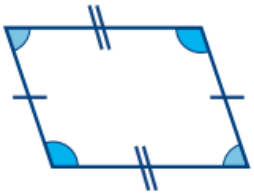
A quadrilateral is a polygon with four sides.



A square has four sides of equal length and four right angles (90°). A square is also a rectangle, a rhombus and a parallelogram.

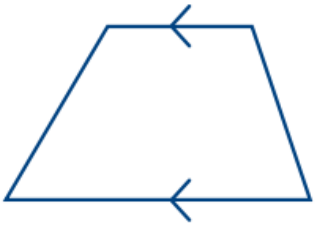


A rectangle has two pairs of parallel, equal sides and four right angles. A rectangle is also a parallelogram.

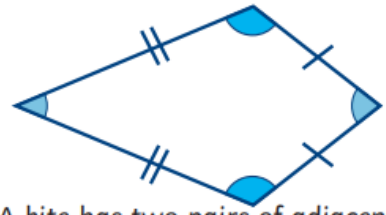


A parallelogram has two pairs of parallel, equal sides and opposite equal angles.

A rhombus has four sides of equal length and opposite equal angles. A rhombus is also a parallelogram.



A trapezium only has one pair of opposite parallel sides.



A kite has two pairs of adjacent equal sides and one pair of opposite equal angles.

You will be asked to identify the name of the shape from the properties above so try to learn these properties to the best of your abilities!

# Types of Angles Learn by Heart Facts

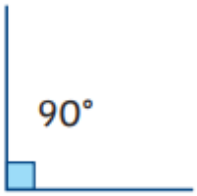
Children in Year 4 need to know and understand the different types of angles that are listed below. They should also understand the properties of each angle type.

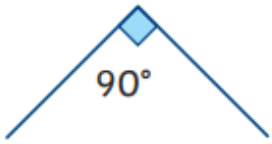
## Angles

An angle is created when two straight lines meet at a point or intersect.

**Right angle**

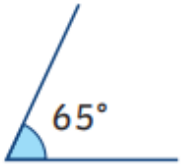
The intersection of perpendicular lines creates a right angle.

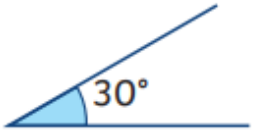



**Acute angle**

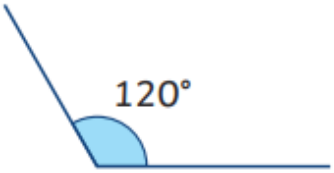
Any angle measuring more than 0 degrees and less than 90 degrees is acute.



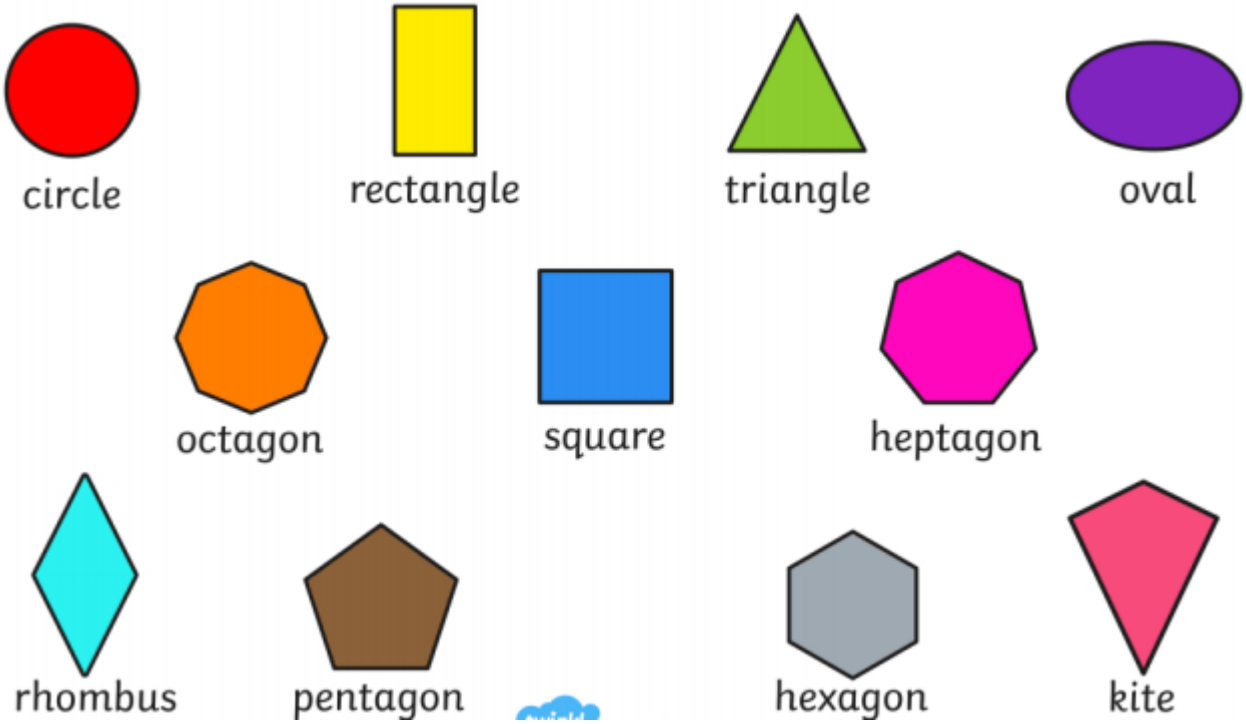

**Obtuse angle**

Any angle measuring more than 90 degrees but less than 180 degrees is obtuse.



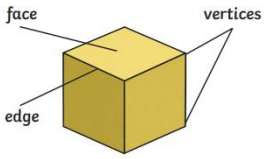
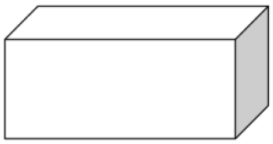
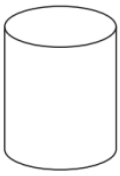
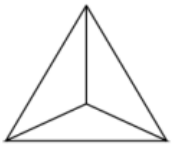
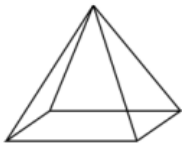
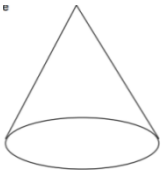
# Properties of 2D Shapes 'Learn by Heart' Facts

| Shape | Sides | Vertices (Corners) | Lines of Symmetry |
|---|---|---|---|
| Square | 4 | 4 | 4 |
| Equilateral Triangle | 3 | 3 | 3 |
| Rectangle | 4 | 4 | 2 |
| Pentagon | 5 | 5 | 5 |
| Hexagon | 6 | 6 | 6 |
| Heptagon | 7 | 7 | 7 |
| Octagon | 8 | 8 | 8 |
| Oval | 1 | 0 | 2 |
| Trapezium | 4 | 4 | 1 |
| Parallelogram | 4 | 4 | 0 |
| Rhombus | 4 | 4 | 2 |
| Kite | 4 | 4 | 1 |



# 3D Shape 'Learn by Heart' Facts

Children can name and recognise the following 3D shapes and give their properties (number of faces, edges and vertices (corners). They are also able to recognise these shapes in the environment (e.g. a tin of baked beans and a tin of tuna are both cylinders).

| Shape | | Faces | Edges | Vertices |
|---|---|---|---|---|
| Cube |  | 6 | 12 | 8 |
| Cuboid |  | 6 | 12 | 8 |
| Cylinder |  | 3 | 2 | 0 |
| Triangular based pyramid |  | 4 | 6 | 4 |
| Square based pyramid |  | 5 | 8 | 5 |
| Sphere |  | 1 | 0 | 0 |
| Cone |  | 2 | 1 | 1 |

## Count in multiples of 6 'Learn by Heart' Facts

Children should know the multiplications fact (and inverse division facts for the six times table.

- 1 × 6 = 6 — 6 ÷ 6 = 1
- 2 × 6 = 12 — 12 ÷ 6 = 2
- 3 × 6 = 18 — 18 ÷ 6 = 3
- 4 × 6 = 24 — 24 ÷ 6 = 4
- 5 × 6 = 30 — 30 ÷ 6 = 5
- 6 × 6 = 36 — 36 ÷ 6 = 6
- 7 × 6 = 42 — 42 ÷ 6 = 7
- 8 × 6 = 48 — 48 ÷ 6 = 8
- 9 × 6 = 54 — 54 ÷ 6 = 9
- 10 × 6 = 60 — 60 ÷ 6 = 10
- 11 × 6 = 66 — 66 ÷ 6 = 11
- 12 × 6 = 72 — 72 ÷ 6 = 12


## Count in multiples of 6 'Learn by Heart' Facts

Children should know the multiplications fact (and inverse division facts for the six times table.

- 1 × 6 = 6 — 6 ÷ 6 = 1
- 2 × 6 = 12 — 12 ÷ 6 = 2
- 3 × 6 = 18 — 18 ÷ 6 = 3
- 4 × 6 = 24 — 24 ÷ 6 = 4
- 5 × 6 = 30 — 30 ÷ 6 = 5
- 6 × 6 = 36 — 36 ÷ 6 = 6
- 7 × 6 = 42 — 42 ÷ 6 = 7
- 8 × 6 = 48 — 48 ÷ 6 = 8
- 9 × 6 = 54 — 54 ÷ 6 = 9
- 10 × 6 = 60 — 60 ÷ 6 = 10
- 11 × 6 = 66 — 66 ÷ 6 = 11
- 12 × 6 = 72 — 72 ÷ 6 = 12

# Count in multiples of 7 'Learn by Heart' Facts

Children should know the multiplications fact (and inverse division fact for the seven times table.

| | |
|---|---|
| 1 × 7 = 7 | 7 ÷ 7 = 1 |
| 2 × 7 = 14 | 14 ÷ 7 = 2 |
| 3 × 7 = 21 | 21 ÷ 7 = 3 |
| 4 × 7 = 28 | 28 ÷ 7 = 4 |
| 5 × 7 = 35 | 35 ÷ 7 = 5 |
| 6 × 7 = 42 | 42 ÷ 7 = 6 |
| 7 × 7 = 49 | 49 ÷ 7 = 7 |
| 8 × 7 = 56 | 56 ÷ 7 = 8 |
| 9 × 7 = 63 | 63 ÷ 7 = 9 |
| 10 × 7 = 70 | 70 ÷ 7 = 10 |
| 11 × 7 = 77 | 77 ÷ 7 = 11 |
| 12 × 7 = 84 | 84 ÷ 7 = 12 |

## Count in multiples of 9 'Learn by Heart' Facts

Children should know the multiplications fact (and inverse division fact for the nine times table.

| | |
|---|---|
| 1 x 9 = 9 | 9 ÷ 9 = 1 |
| 2 x 9 = 18 | 18 ÷ 9 = 2 |
| 3 x 9 = 27 | 27 ÷ 9 = 3 |
| 4 x 9 = 36 | 36 ÷ 9 = 4 |
| 5 x 9 = 45 | 45 ÷ 9 = 5 |
| 6 x 9 = 54 | 54 ÷ 9 = 6 |
| 7 x 9 = 63 | 63 ÷ 9 = 7 |
| 8 x 9 = 72 | 72 ÷ 9 = 8 |
| 9 x 9 = 81 | 81 ÷ 9 = 9 |
| 10 x 9 = 90 | 90 ÷ 9 = 10 |
| 11 x 9 = 99 | 99 ÷ 9 = 11 |
| 12 x 9 = 108 | 108 ÷ 9 = 12 |


## Count in multiples of 9 'Learn by Heart' Facts

Children should know the multiplications fact (and inverse division fact for the nine times table.

| | |
|---|---|
| 1 x 9 = 9 | 9 ÷ 9 = 1 |
| 2 x 9 = 18 | 18 ÷ 9 = 2 |
| 3 x 9 = 27 | 27 ÷ 9 = 3 |
| 4 x 9 = 36 | 36 ÷ 9 = 4 |
| 5 x 9 = 45 | 45 ÷ 9 = 5 |
| 6 x 9 = 54 | 54 ÷ 9 = 6 |
| 7 x 9 = 63 | 63 ÷ 9 = 7 |
| 8 x 9 = 72 | 72 ÷ 9 = 8 |
| 9 x 9 = 81 | 81 ÷ 9 = 9 |
| 10 x 9 = 90 | 90 ÷ 9 = 10 |
| 11 x 9 = 99 | 99 ÷ 9 = 11 |
| 12 x 9 = 108 | 108 ÷ 9 = 12 |

## Count in multiples of 25 'Learn by Heart' Facts

Children should be able to count in multiples of 25. Ideally, they should also know the related division fact.

- 1 x 25 = 25
- 2 x 25 = 50
- 3 x 25 = 75
- 4 x 25 = 100
- 5 x 25 = 125
- 6 x 25 = 150
- 7 x 25 = 175
- 8 x 25 = 200
- 9 x 25 = 225
- 10 x 25 = 250


## Count in multiples of 25 'Learn by Heart' Facts

Children should be able to count in multiples of 25. Ideally, they should also know the related division fact.

- 1 x 25 = 25
- 2 x 25 = 50
- 3 x 25 = 75
- 4 x 25 = 100
- 5 x 25 = 125
- 6 x 25 = 150
- 7 x 25 = 175
- 8 x 25 = 200
- 9 x 25 = 225
- 10 x 25 = 250

## Fraction & Decimal Equivalence 'Learn by Heart' Facts

Can you memorise the following fraction and decimal equivalents?

- 1/3 = 0.333
- ¼ = 0.25
- 1/5 = 0.2
- 1/8 = 0.125
- 1/10 = 0.1

- ½ = 0.5
- ¾ = 0.75
- 1 whole = 1

| Fraction and Decimal Equivalents | | | |
|---|---|---|---|
|  | = $\frac{1}{2}$ | = | 0.5 |
|  | = $\frac{1}{4}$ | = | 0.25 |
|  | = $\frac{3}{4}$ | = | 0.75 |
|  | = $\frac{1}{10}$ | = | 0.1 |


## Fraction & Decimal Equivalence 'Learn by Heart' Facts

Can you memorise the following fraction and decimal equivalents?

- 1/3 = 0.333
- ¼ = 0.25
- 1/5 = 0.2
- 1/8 = 0.125
- 1/10 = 0.1

- ½ = 0.5
- ¾ = 0.75
- 1 whole = 1

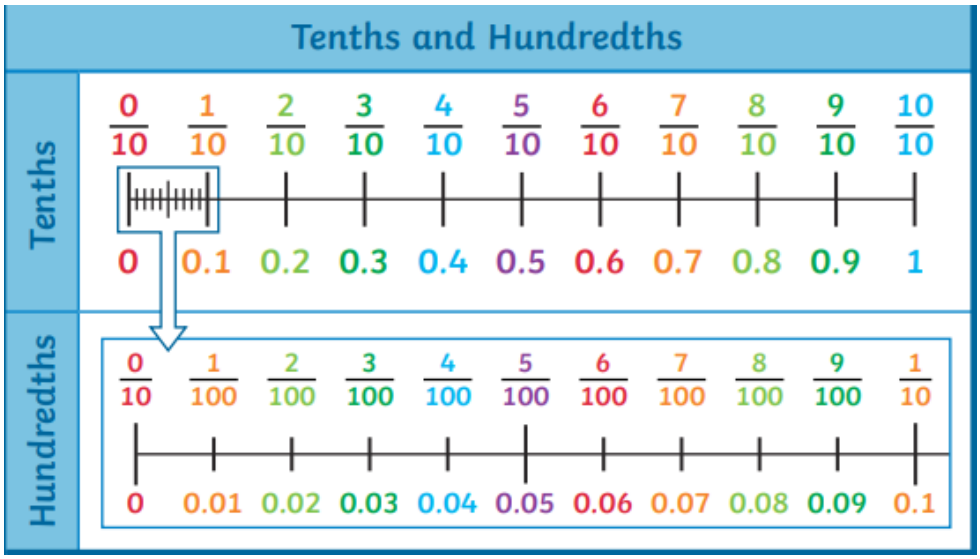

| Fraction and Decimal Equivalents | | | |
|---|---|---|---|
|  | = $\frac{1}{2}$ | = | 0.5 |
|  | = $\frac{1}{4}$ | = | 0.25 |
|  | = $\frac{3}{4}$ | = | 0.75 |
|  | = $\frac{1}{10}$ | = | 0.1 |

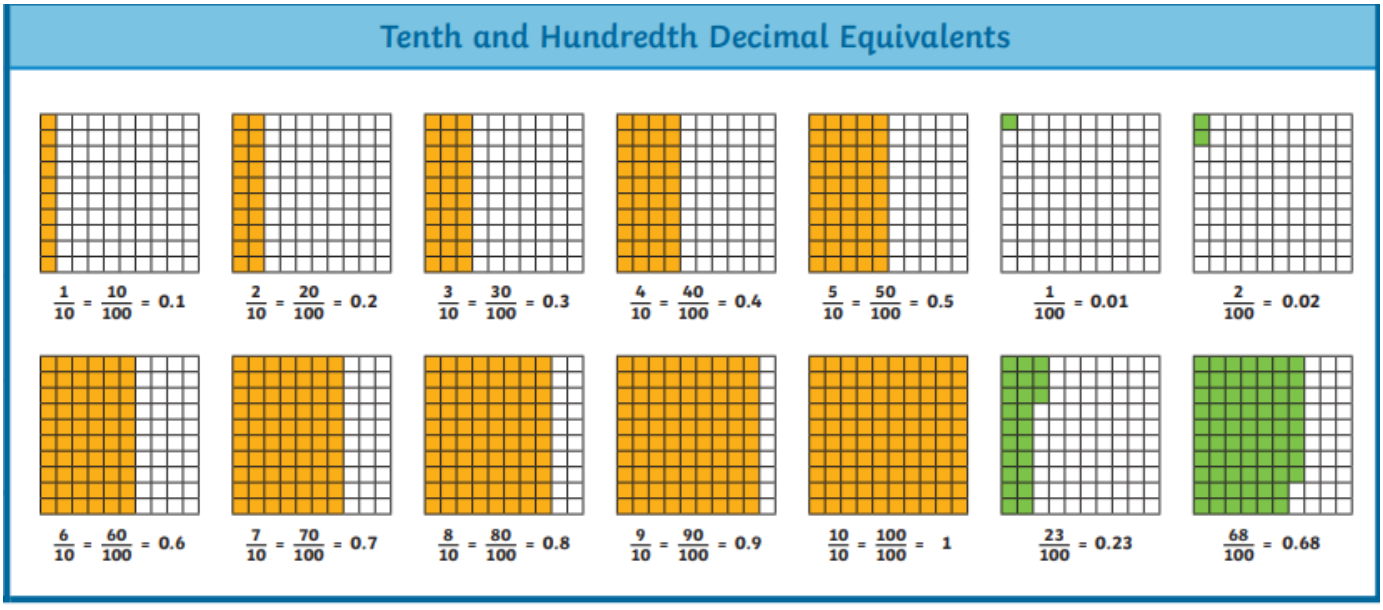
# Tenth and Hundredths Equivalence 'Learn by Heart' Facts

Can you learn the decimal equivalence of tenths and hundredths?

- 1/10 = 0.1
- 2/10 = 0.2
- 3/10 = 0.3
- 4/10 = 0.4
- 5/10 = 0.5
- 6/10 = 0.6
- 7/10 = 0.7
- 8/10 = 0.8
- 9/10 = 0.9
- 10/10 = 1

1/100 = 0.01
2/100 = 0.02
3/100 = 0.03
4/100 = 0.04
5/100 = 0.05
6/100 = 0.06
7/100 = 0.07
8/100 = 0.08
9/100 = 0.09
10/100 = 0.10 (1 tenth)



# Equivalent Fractions 'Learn by Heart' Facts

In Year 4, children should be able to calculate equivalent fractions. They should also be able to identify equivalent fractions using a fraction wall (see below).

For the facts for the next two weeks, we would like your child to learn equivalent fractions of 1/4 , 1/2, 1/5 and 1/6. Your child will understand how to use the fraction wall below to support them. For example, 1/4 = 2/8.

## Recognising Fractions

$\frac{3}{8}$

**Numerator**
How many equal parts of the whole are needed?

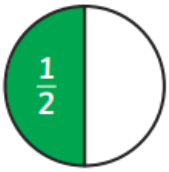
**Denominator**
How many equal parts are in the whole?

## Comparing Fractions

$\frac{1}{3}$ Less than $\frac{2}{3}$

$\frac{4}{5}$ Greater than $\frac{3}{5}$

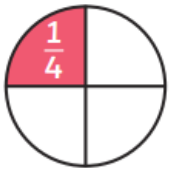
## Equivalent Fractions



$\frac{1}{2}$ is equal to...

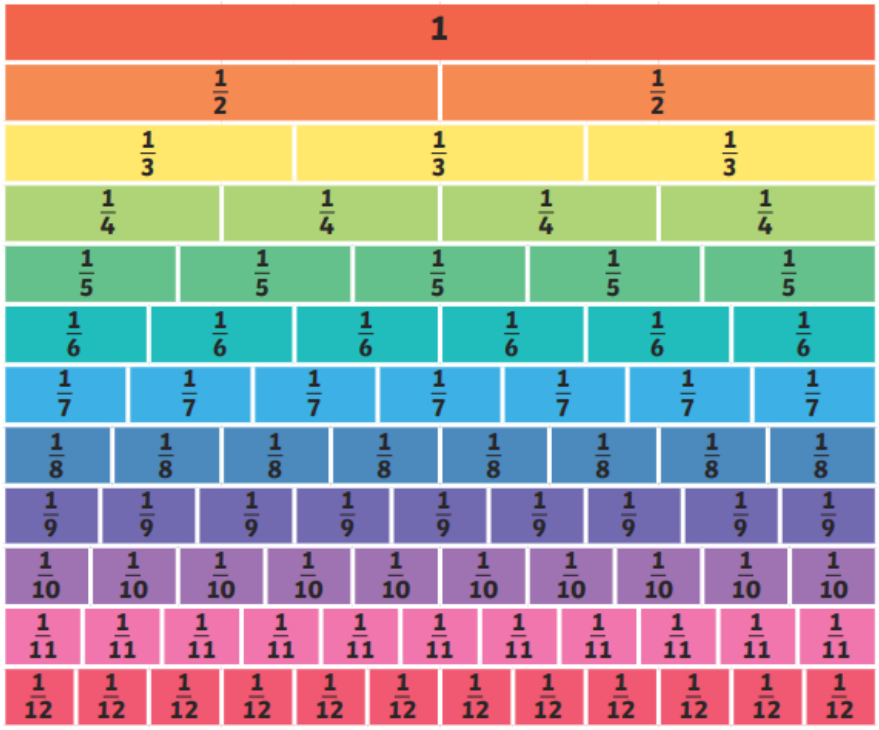
$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$





$\frac{1}{4}$ is equal to...

$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20}$



## Counting in Multiples of 25, 50 and 100 'Learn by Heart' Facts

Children need to be able to count forwards and backwards in multiples of 25, 50 and 100. They should be able to do this by spotting the repeating patterns!

Multiples of 25: 0, 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300 and so on...

Multiples of 50: 0, 50, 100, 150, 200, 250, 300, 350, 400 and so on...

Multiples of 100: 0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 and so on...

To extend youself, try to count forwards and backwards in multiples of 25, 50 and 100 from ANY GIVEN NUMBER!

Example: 34
34, 59, 84, 109, 134 (25's) CAN YOU SEE A PATTERN?! IS A PATTERN ALWAYS VISIBLE?
67, 117, 167, 217, 267 (50's)


## Counting in Multiples of 25, 50 and 100 'Learn by Heart' Facts

Children need to be able to count forwards and backwards in multiples of 25, 50 and 100. They should be able to do this by spotting the repeating patterns!

Multiples of 25: 0, 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300 and so on...

Multiples of 50: 0, 50, 100, 150, 200, 250, 300, 350, 400 and so on...

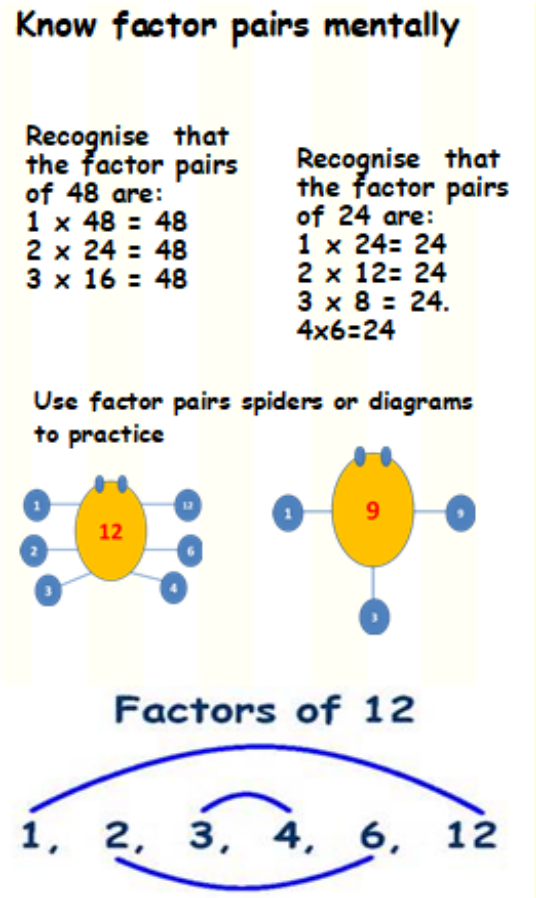
Multiples of 100: 0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 and so on...

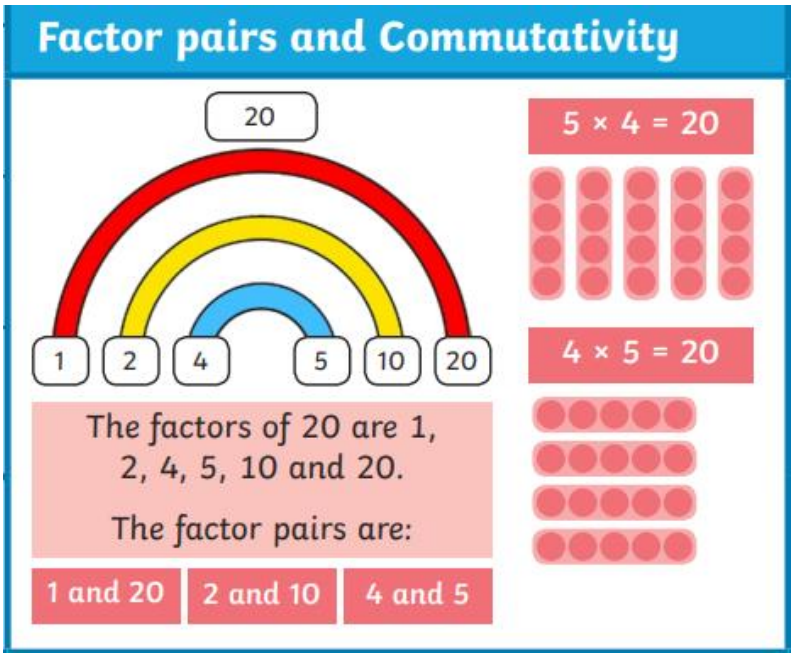
To extend youself, try to count forwards and backwards in multiples of 25, 50 and 100 from ANY GIVEN NUMBER!

Example: 34
34, 59, 84, 109, 134 (25's) CAN YOU SEE A PATTERN?! IS A PATTERN ALWAYS VISIBLE?
67, 117, 167, 217, 267 (50's)

# To Learn and Remember Factor Pairs Mentally 'Learn by Heart Facts'

Children need to understand what a factor of a number means (numbers that divide into a given number exactly) and then understand how to find factor pairs (two numbers that multiply together to create the given number. Can you find factors of given numbers below 50? An example of how to learn this is below:



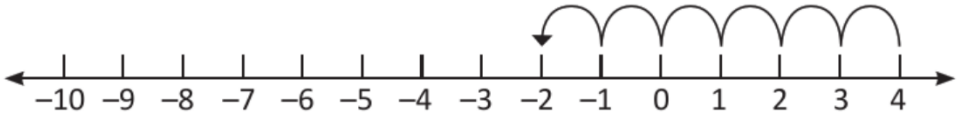



# Counting Backwards Through Zero 'Learn by Heart' Facts

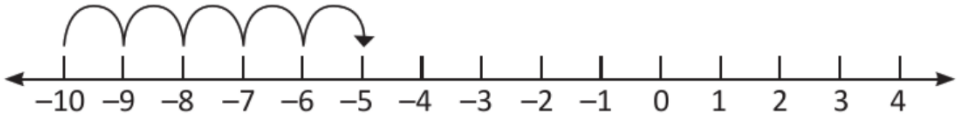
Children need to be able to count backwards through zero from a given number. This helps to introduce them to negative numbers. Look at the examples below for inspiration! You will be asked to answer calculations like this!

**Use the number line to complete the number sentence:**

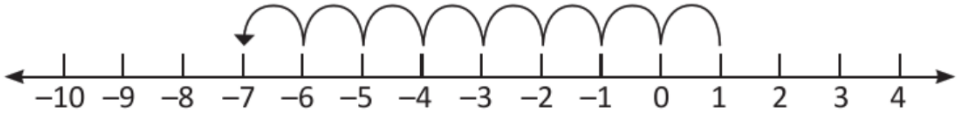
a ☐ − ☐ = − 2

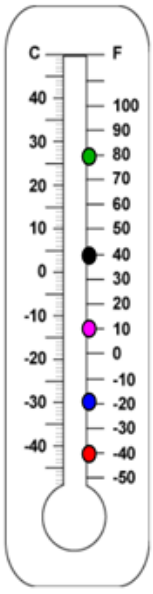



b ☐ + ☐ = − 5



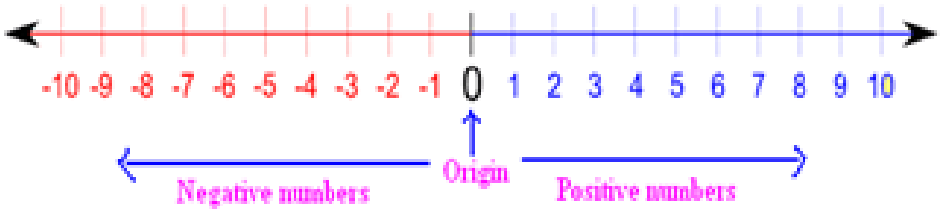

c ☐ − ☐ = − 7




## Use this number line to help you.


1. Start at 2. Take away 4. What number are you on now?
So 2 - 4 = ?
2. Start at -1. Add on 4. What number are you on now?
So -1 + 4 = ?
3. Start at 5. Take away 8. What number are you on now?
So 5 - 8 = ?
4. Start at 12. Take away 18. What number are you on now?
So 12 - 18 = ?



# Money 'Learn by Heart' Facts

Year 4, children need to be able to recognise notes and coins. They should be able to make given amounts using a combination of different coins/notes. You could ask your child to make amounts using any coins/notes you may have at home. If not, they could simply use the image below to support the recognition of each coin/note.

## UK Coins

| | | | | | | | |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |
| **£0.01** one penny coin | **£0.02** two pence coin | **£0.05** five pence coin | **£0.10** ten pence coin | **£0.20** twenty pence coin | **£0.50** fifty pence coin | **£1.00** one pound coin | **£2.00** two pound coin |

## UK Coins


**1p** one penny coin


**2p** two pence coin


**5p** five pence coin


**10p** ten pence coin


**20p** twenty pence coin


**50p** fifty pence coin


**£1** one pound coin


**£2** two pound coin

## UK Notes

**£5** five pound note

**£10** ten pound note

**£20** twenty pound note

**£50** fifty pound note

## Pounds and Pence


£3 and 25 pence

£52 and 13 pence

## Convert Pounds and Pence


120 pence
100 pence is £1
120 pence is £1 and 20 pence.