**(3) triangle**

equilateral isosceles

**(5) pentagon**

scalene right angled  **(6) hexagon (7) heptagon**

**(8) octagon**

**(9) nonagon**

**(10) decagon**

**(4) quadrilateral (12) dodecagon**

*kite trapezium*

*square rectangle parallelogram rhombus arrowhead*

similar shapes

congruent

**2D shapes - Polygons**

irregular or regular

**Other 2D shapes**

-circle

-semicircle

-radius

-circumference

- diameter

- sector

**3D solids**

sphere cylinder

cube cuboid

hemisphere

tetrahedron

cone pyramid

area volume

plane surface

edge angle

vertex

(plural - vertices)

face side

Geometry (shape)

|  |  |
| --- | --- |
| **Definitions**   |  | | --- | | **angle** a measure of turn | |
| **arc** a fraction of the circumference of a circle,  often drawn when 'constructing' a circle |
| **area** a measure of how much surface a shape covers |
| . |
| **circle** the loci of all the points that are equal  distance from a point (the centre) |
| **circumference** the curved line around a circle |
| **cone** a solid shape with a circular base coming to a point |
| **congruent** shapes which are identical in shape and size |
| **cube** a solid shape with 6 square faces |
| **cuboid** a solid shape with 6 rectangular faces |
| **cylinder** a prism with a circular face (like a tin) |
| **diameter** a line from one side of a circle to the other  through the centre, cutting it exactly in half. |
| **edge** the place where two faces meet |
| **face** a flat surface found on a 3D shape |
| **hemisphere** half a sphere (or half a ball) |
| **irregular** a 2D shape where the sides and angles  are not all the same |
| **parallel** two straight lines in the same direction  equal distances from each other (like train  tracks) |
| **perpendicular** meeting at a 90° angle |
| **plane** a flat surface, often drawn to show symmetry  for solids |
| **polygon** a 2D shape made up of straight sides |
| **pyramid**  a 3D solid shape with a usually a square  or triangular base, rising to a point |
| **radius (pl. radii)** a line joining the centre of a circle  to the edge |
| **regular**  a shape where all sides and angles are the  same. |
| **sector**  a fraction of a circle (a piece of pie) |
| **segment** a piece of a circle, formed by cutting a straight line across the circle |
| **semicircle** half of a circle |
| **side** one of the boundaries of a shape |
| **similar** two shapes are similar if they have identical angles and one shape is an enlargement of the other |
| **sphere** a 3D shape - a ball shape |
| **surface** a flat area |
| **Tetrahedron** a solid with 4 faces (triangular basedpyramid) |
| **vertex (pl. vertices)** a point where three faces meet |
| **volume** the amount of space a 3D solid takes up,  often measured in cm3 or m3 |

**Angle descriptors**

acute

right angle

obtuse

straight angle

reflex

point

**Angles**

parallel equal complementary supplementary

sum perpendicular vertically opposite

Geometry (angles)

**ANGLE RULES TO BE QUOTED (IN EXAMS)**

The angles at a point add up to 360°

The angles on a line add up to 180°

Vertically opposite angles are equal

Angles in a triangle add up to 180°

Angles in a quadrilateral add up to 360°

**DEFINITIONS**

|  |
| --- |
| **adjacent** next to each other |
| **degree**  ° a unit of measure of turn |
| **acute** an angle between 0 and 90° |
| **interior angle** an angle inside a polygon |
| **obtuse** an angle between 90° and 180° |
|  |
| **parallel** lines which are drawn in the same direction and  are the same distance between each other |
| **perpendicular** lines which meet at 90° |
| **point**  a dot, or a place where 2 or more lines meet |
| **reflex**  an angle between 180° and 360° |
| **right angle** a 90° angle (found in squares and rectangles) |
| **straight angle** a 180°angle |
| **sum** to find the total or to add up |
| **vertically opposite** angles opposite each other formed where two straight lines cross |

**Length**

kilometre (km), metre (m), centimetre (cm), millimetre (mm)

**Area**

km2, m2, cm2 , mm2

**Volume**km3, m3, cm3, mm3

**Capacity**

litre (l), millilitre (ml), centilitre (cl)

**Mass**

Tonne (t), kilogram (kg), gram(g), milligram (mg)

Geometry (measures)

,

circumference

perimeter

scale

**Metric Conversion**

**Length**

1km = 1000m

1m = 100cm

1m = 1000mm

1cm = 10mm

**Capacity**

1 litre = 1000ml (or 1000cm3)

1 millilitre = 1 cm3

**Mass**

1 tonne = 1000kg

1kg = 1000g

1g = 1000mg

**Definitions**

**capacity and volume** volume is the amount of space being taken up by an object or substance. Capacity is the space available*. Example: A bucket has a capacity of 20 litres so the volume of water needed to fill it is 20 litres.*

**perimeter**  the distance around the outside of a shape

**length**  the distance between two fixed points

**area** the amount of a surface taken up by a shape.

**mass** the quantity of matter the object contains

**Data collection**

data collection sheet

questionnaire

sample

biased

fair representation

random sample

continuous data

discrete data

**Calculations**

average / measure of location

mean

median

mode

modal class

measures of dispersion (spread)

range

**Tables**

Tally/frequency chart

**Graphs**

histogram

pie chart

stem and leaf diagram

pictogram

bar graph

Statistics

|  |
| --- |
| **Definitions**  **average / measure of location** a single value used to describe the value of a set of data |
| **biased** an unfair or prejudiced set of data that does not fairly represent the population |
| **continuous data** data that has no gaps in it, usually from a measurement like time, length or mass |
| **data collection sheet** a sheet designed to collect data, usually containing tally charts |
| **discrete data** data with gaps (like shoe size) or where something has been counted (number of pets) |
| **fair representation** a sample picked from a whole population in a fair way |
| **frequency** the total |
| **mean** a type of average found by adding the data then dividing by how many numbers there are |
| **measures of dispersion** how spread out the data is |
| **median** the middle value from an ordered list |
| **modal class** the group with the highest frequency (the most) |
| **mode** the value that occurs the most |
| **pictogram** a diagram with pictures and a key |
| **pie chart** a circle where each sector represents a group of data |
| **Population** the whole group being investigated |
| **questionnaire** a question with option boxes |
| **random sample** each member of the population is equally likely to be picked (names out of a hat) |
| **range** the biggest value - the smallest value, a measure of dispersion or spread |
| **sample** a selection of data taken from the whole population |
| **stem and leaf diagram** a statistical diagram with a key |

biased fair

outcome trial

event

chance

impossible

likely

unlikely

certain

equally likely

even chance

odds

Probability

theoretical probability

experimental probability

relative frequency

expected frequency

tree diagram

Venn diagram

sample space

fraction decimal percentage

(never as a ratio!)

|  |
| --- |
| **Definitions**  **biased**  where the sample or outcome is distorted or unfair and the outcomes are not equally likely |
| **certain** the event will definitely occur and no other event  is possible |
| **chance** the likelihood of an event happening |
| **equally likely** every outcome has an equal chance of  happening |
| **even chance** the probability of the event happening is 0.5  **event** a combination of one or more outcomes  i.e P(even number on a dice) or P(Q,K or A card) |
| **expected frequency** the number of times you expect to achieve a particular event when an experiment is  repeated a number of times |
| **experimental probability** = relative frequency  a probability calculated from an experiment which  has been repeated a number of times and the  outcomes recorded. |
| **fair** unbiased and all the outcomes are equally likely |
| **Impossible** the event cannot happen |
| **likely** the event is possible (more than an even chance) but is not certain |
|  |
| **odds** probability in Mathematics is never written as an odd i.e 3:1 or similar |
| **outcomes** a list of all the possibilities - events are  combinations of these |
| **relative frequency** = experimental probability  **sample space** a diagram or table listing all of the possible outcomes |
| **theoretical probability** a probability that is calculated onthe properties of the problem (i.e 52 cards in a  pack or 6 faces on a fair dice). Experimentation is not needed and the probability is accurate |
| **tree diagram** a diagram used to show all the possible results when more than one outcome is combined |
| **trial** the result of an experiment (which is often repeated a  number of times to calculate an experimental probability |
| **unlikely** the event is possible (less than an even chance but is not impossible |
| **Venn diagram** a diagram used to show more complicated data where events overlap in order to  calculate probabilities |

**Operations** BEDMAS

**Rounding**

leading figure

decimal place

place value

approximate

estimate

**add**  +

addition

sum

total

plus

**subtract**  -subtraction

difference

take away

Number

Properties and Calculations

**multiply** × multiplication

product

times

by

**divide** ÷

division

share

divisor remainder quotient

factor

multiple

prime

square

integer

hcf

lcm

odd

even

consecutive

**Indices**

Reciprocal

index

power

base

**Proportion**

ratio

equivalent

numerator

denominator

improper

top heavy

unit fraction

mixed number

recurring decimal

|  |
| --- |
| **BEDMAS**  **B**rackets **E**xponents **D**ivide **M**ultiply **A**dd **S**ubtract  **SYMBOLS**  = equal to ≈ approximately equal to  ≠ not equal to ≡ identical to/the same as  < less than > greater than  ≤ less than or equal to ≥ greater than or equal to  ± plus or minus % percent  \* multiply (used in Excel formulae) ² squared ³ cubed the cube root of 8 the square root of 49  **DEFINITIONS**  **approximate**  ≈ roughly the same, a rounded value |
| **consecutive** numbers that are next to each other e.g. 23,24,25  **cube** ³ to multiply by itself three times e.g.2 cubed = 2×2×2 = 23 8 |
| **decimal place** the position of a digit with a value in the , , place value columns |
| **denominator** the value on the bottom of a fraction |
|  |
| **estimate** to calculate approximately using leading figure approximation |
| **even** a number that is divisible by 2 (or in the two times table, ending in 0,2,4,6,8) |
| **factor**  a whole number that you can divide by with no remainder left over |
| **HCF** highest common factor - the largest number that is a factor of all the numbers given |
| **improper** a fraction where the numerator is larger than the  denominator - a fraction greater than 1 |
| **integer** a whole number |
| **LCM** lowest common multiple the smallest multiple in common of all the numbers given |
| **mixed number** a whole number and a fraction e.g. 2 |
| **multiple** a number in its times table e.g. 25 is a multiple of 5 |
| **numerator** the top number of a fraction |
| **odd**  a number not divisible by 2, ends in 1,3,5,7,9 |
| **place value** the position of a digit which determines its size |
| **prime** a number with exactly 2 factors, 2,3,5,7,11, 13, 17... |
| **ratio** a comparison between 2 numbers |
| **reciprocal** 1 divided by the given number - the reciprocal of 4 is |
| **recurring decimal** a decimal with a repeating pattern  e.g. 0.3333333 |
|  |