Maths Need to Know **Geometry**
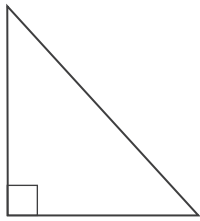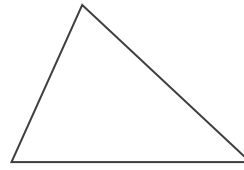
Triangles

The sum of interior angles in a triangle is 180°.
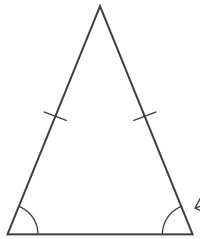
Right-Angled:

Contains one angle of 90°.

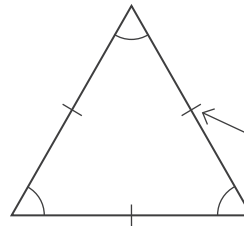**Scalene:**

All sides and **all** angles **different**.

Isosceles:

Has two sides of **equal length** and contains two **equal angles**.
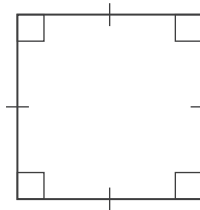
These lines show equal angles.

Equilateral:

All sides and **all** angles (60°) are equal.
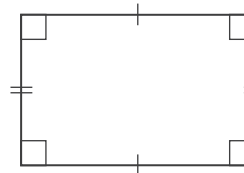
These lines show equal lengths.

Quadrilaterals

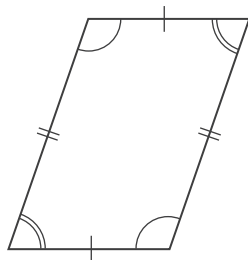The sum of interior angles in a quadrilateral is 360°.

Square:

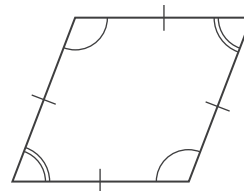All sides are equal length, opposite sides parallel, all right-angles.

Rectangle:

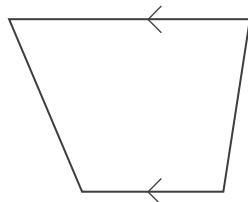Opposite sides are equal length and parallel, all right-angles.

Parallelogram:

Opposite sides are equal length and parallel, diagonally opposite angles are equal, **no** right-angles.
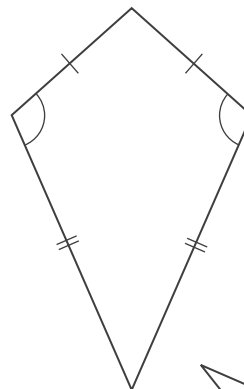
Rhombus:

All sides are equal length, opposite sides parallel, opposite angles are equal, **no** right-angles.
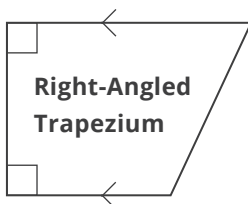
Trapezium:

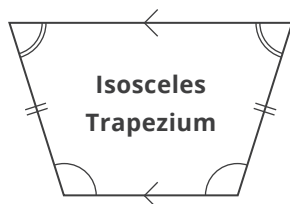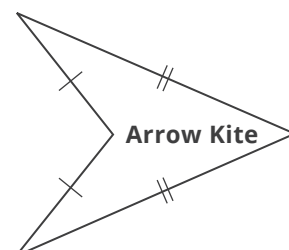One pair of parallel sides of unequal length.

Kite:

Two sets of equal sides next to each other, **no** lines parallel. There are two equal angles where the longer sides meet the shorter sides.
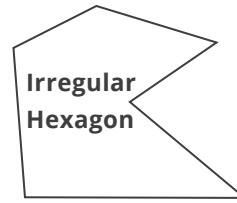
Right-Angled Trapezium

Isosceles Trapezium

Arrow Kite

Polygons

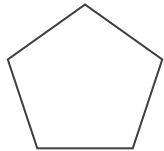The sum of interior angles for any polygon is 180° × (Number of sides (n) − 2) = 180(n − 2)

Regular
Hexagon

Regular Polygon:
All sides are equal length with equal interior angles.
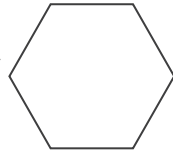
Irregular
Hexagon

Irregular Polygon:
Sides and interior angles are **not** all equal.

Pentagon
5 sides

Hexagon
6 sides
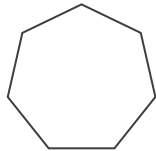
Heptagon
7 sides
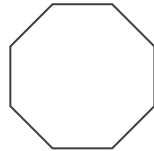
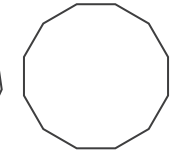**Octagon**
8 sides
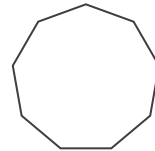
Nonagon
9 sides
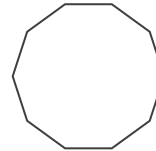
Decagon
10 sides
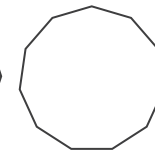
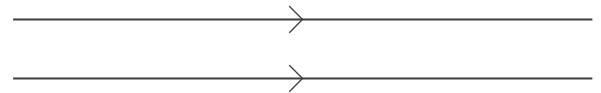**Hendecagon**
11 sides

Dodecagon
12 sides

Parallel Lines

Useful for drawing certain quadrilaterals.

Parallel lines are always the same distance apart running side by side, therefore they **never meet**. (The matching arrows on the lines indicate they are parallel.)

To ensure you are drawing parallel lines accurately, it helps to know the following: **Interior angles a and b add up to 180°.**
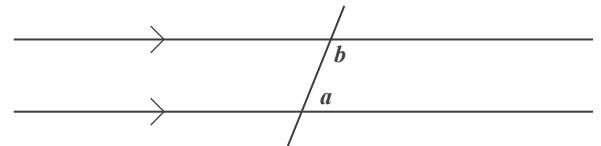
Example:
- Draw a straight horizontal line.
- Draw a vertical(ish) line through it.
- Measure the angle (a).
- If angle a is 75°, angle b will be 105°.
- And the parallel line can be drawn from that.
- Obviously the easiest angle to choose would be a right angle!

Perpendicular Lines

Useful for drawing certain quadrilaterals **and** certain triangles.

Perpendicular means lines that meet at 90°. So just do that... using a protractor for accuracy of course!