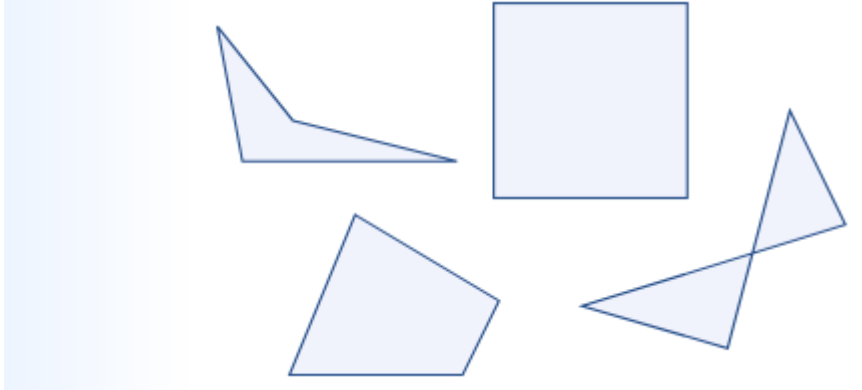# Quadrilaterals (DAY-2)

Quadrilateral just means "four sides"
(*quad* means four, *lateral* means side).
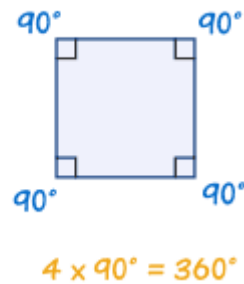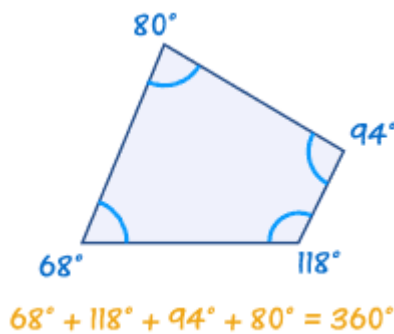

A Quadrilateral has four-sides, it is **2-dimensional** (a flat shape), **closed** (the lines join up), and has **straight** side

Properties

A quadrilateral has:

- four sides (edges)
- four vertices (corners)
- interior angles that add to **360 degrees**:

$68° + 118° + 94° + 80° = 360°$ $4 \times 90° = 360°$

Try drawing a quadrilateral, and measure the angles. They should add to **360°**

Types of Quadrilaterals

There are special types of quadrilateral:
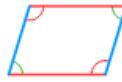
Rectangle — All angles 90° · Opposite sides equal
Square — All angles 90° · All sides equal
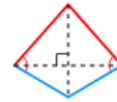Rhombus — All sides equal · Opposite sides parallel
Parallelogram — Opposite sides parallel and equal
Trapezoid (US) Trapezium (UK) — Two sides parallel
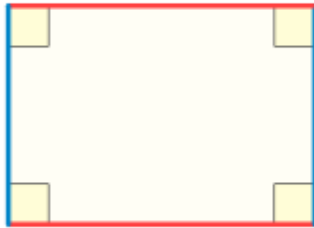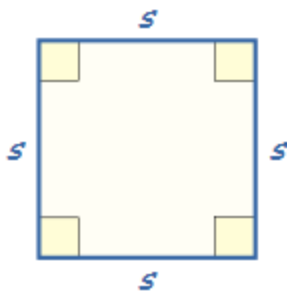Kite — Adjacent pairs of sides equal

The Rectangle

A rectangle is a four-sided shape where every angle is a right angle (90°).

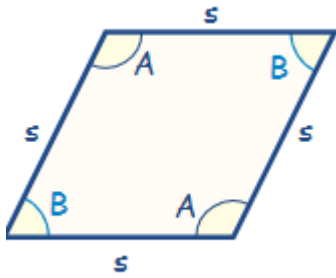Also **opposite sides** are parallel and of equal length

The Square

A square has equal sides (marked "s") and every angle is a right angle (90°)

Also opposite sides are parallel.

A square also fits the definition of a **rectangle** (all angles are 90°), and a **rhombus** (all sides are equal length)
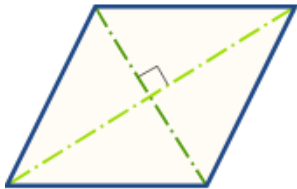
The Rhombus

A Rhombus is a four-sided shape where all sides have equal length (marked "s").

Also opposite sides are parallel *and* opposite angles are equal.

Another interesting thing is that the diagonals (dashed lines) meet in the middle at a right angle. In other words they "bisect" (cut in half) each other at right angles.

A rhombus is sometimes called a **rhomb** or a **diamond**.

The Parallelogram
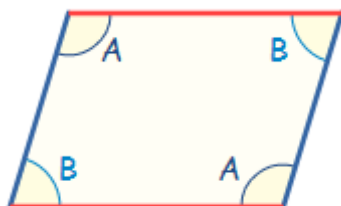
A parallelogram has opposite sides parallel and equal in length. Also opposite angles are equal (angles "A" are the same, and angles "B" are the same).
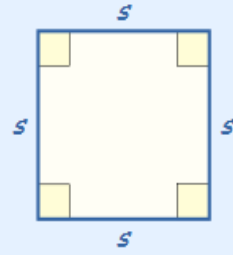
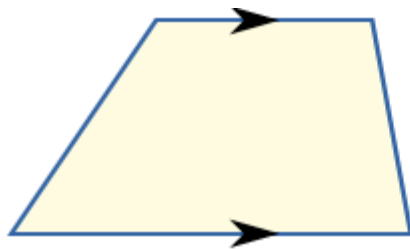**NOTE: Squares, Rectangles and Rhombuses are all Parallelograms**
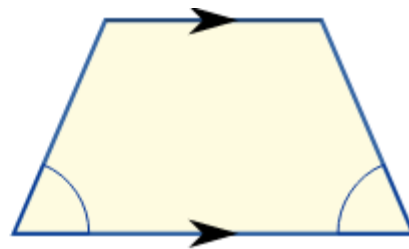
The Trapezoid (UK: Trapezium)

Trapezoid   Isosceles Trapezoid

A trapezoid *(called a trapezium in the UK)* has a pair of opposite sides parallel.

And a **trapezium** *(called a trapezoid in the UK)* is a quadrilateral with NO parallel sides:

	Trapezoid	Trapezium
In the US:	a pair of parallel sides	NO parallel sides
In the UK:	NO parallel sides	a pair of parallel sides

(the US and UK definitions are swapped over!)

An **Isosceles** trapezoid, as shown above, has left and right sides of equal length that join to the base at equal angles

The Kite
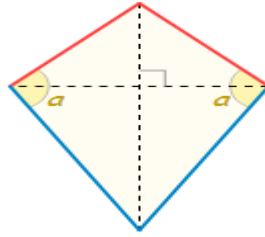
Hey, it looks like a kite (usually).

It has **two pairs** of sides:

Each pair is made of two equal-length sides that join up.

Also:

- the angles where the two pairs meet are equal.
- the diagonals, shown as dashed lines above, meet at a right angle.
- one of the diagonals *bisects* (cuts equally in half) the othe.
- **and that's it for the special quadrilaterals**

Compiled by---

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