There are special types of quadrilaterals :
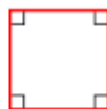

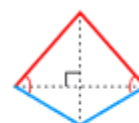Parallelogram — Rectangle — Rhombus — Square — Trapezoid (US) Trapezium (UK) — Kite

These are pronounced...

Parallelogram	Rectangle	Rhombus	Square	Trapezium	Kite
/ˌpær əˈlɛl əˌgræm/	/ˈrɛkˌtæŋ gəl/	/ˈrɒm bəs/	/skwɛər/	/trəˈpi zi əm/	/kait/

² / ₁ **Exercise 1.** Definitions of some quadrilaterals

Fill in the blanks with one of the following words: rectangle – square – parallelogram – rhombus – kite – trapezium

1) A …………………… is is a quadrilateral with 4 equal angles and 4 equal sides.

2) A………………….. is a four-sided polygon in which every side has the same length.

3) A …………………….. is a quadrilateral with two pairs of equal adjacent sides.

4) A …………………….. is defined as a quadrilateral where all four of its angles are right angles.

5) A …………………….. is a quadrilateral, which is defined as a shape with four sides, which has one set of parallel sides.

6) A …………………….. is a quadrilateral with two sets of parallel sides.

² / ₁ **Exercise 2.** Characteristic properties of a ……………………

A quadrilateral is a ………………………… if and only if <u>one</u> of the following properties is true:
    (1) its diagonals bisect each other (meet at their midpoints)
    (2) its opposite sides are equal in length.
    (3) two opposite sides are parallel and equal in length.

² / ₁ **Exercise 3.** Links between some quadrilaterals
A square is a special case of a rectangle.
What other links between quadrilaterals exist?

² / ₁ **Exercise 4.** [AB] is a diameter of a circle with centre O. C is a point on the circumference. D is a point on (AC) such that (OD) bisects the angle AOC. Prove that (OD) is parallel to (BC).
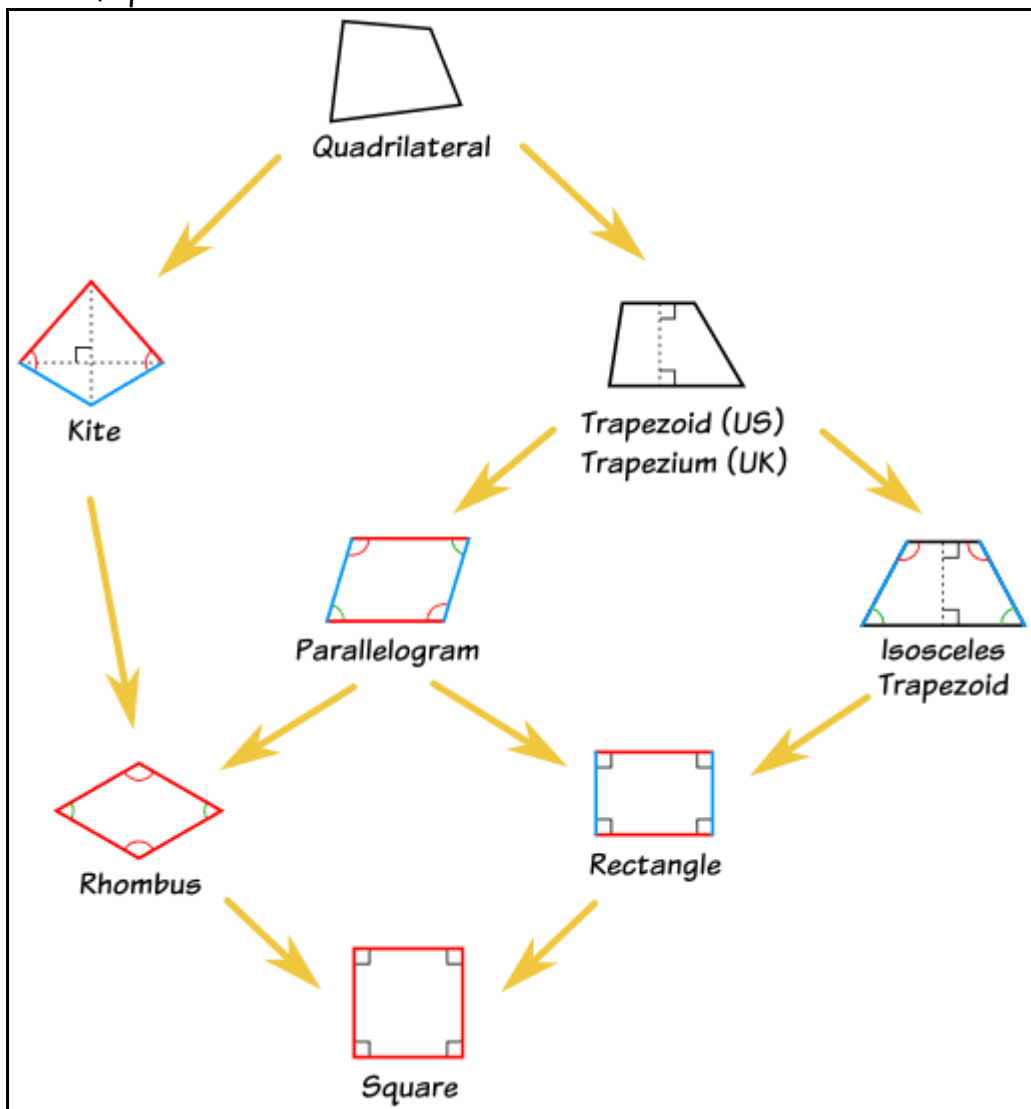
² / ₁ **Exercise 5.** A circle with centre O circumscribes an equilateral triangle ABC. The radius drawn through O and the midpoint of [AB] meets the circumference at D. Prove that ADO is equilateral.

² / ₁ **Exercise 6.** The median m divides the ABC triangle in 2 triangles, ABM and ACM. What is the ratio between the areas of the 2 triangles, $\text{Area}_{ABM}/\text{Area}_{ACM}$?

Useful words / Pronunciation corner
- quadrilaterals   /ˌkwɒd rəˈlæt ər əl/
- characteristic   /ˌkær ɪk təˈrɪs tɪk/
- diagonal /daɪˈæg ə nl/
- to bisect /baɪˈsɛkt / = to divide into two equal parts.
- Angle bisector /baɪˈsɛk tər/ = bissectrice
- Perpendicular bisector of a line segment = médiatrice
- median /ˈmi di ən/ = a straight line from a vertex of a triangle to the midpoint of the opposite side. The three medians always intersect at a single point. This point is called the *centroid* or the *center of gravity* of the triangle.
- equilateral /ˌi kwəˈlæt ər əl /
- isoceles /aɪˈsɒs əˌliz/ : An isoceles triangle has (at least) two equal sides.
- circumbscribe /ˈsɜr kəmˌskraɪb / :to encircle
- area /ˈɛər i ə/

Sources: a document by Christelle Arbel, http://euromath.free.fr/IMG/pdf/Geometry.pdf, http://dictionary.reference.com, and http://www.mathsisfun.com/quadrilaterals.html

■ Classification of quadrilaterals:

■ Why I decided not to talk a lot about those:
A **trapezium** (UK: trapezoid) is a quadrilateral with NO parallel sides:

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