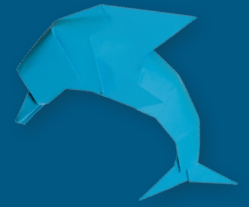
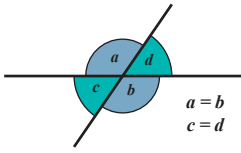


GCSE (9–1) Mathematics

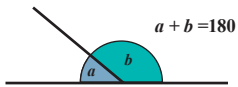
Geometrical Reasoning



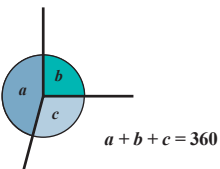
Lines



Vertically opposite angles are equal

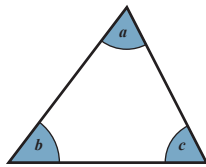


Angles on a straight line add up to 180



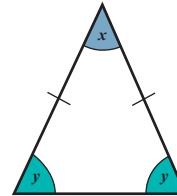
Angles at a point add up to 360

Triangles

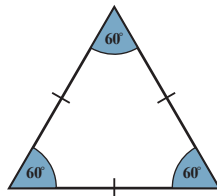


$$a + b + c = 180$$

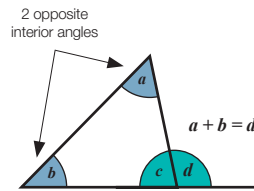
Angles in a triangle add up to 180



Base angles of an isosceles triangle are equal



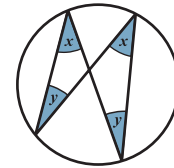
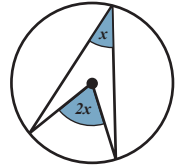
Angles in an equilateral triangle are equal



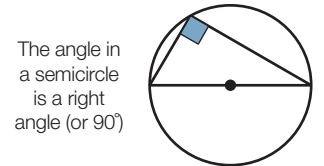
An exterior angle (of a triangle) is equal to the sum of the interior opposite angles

Circle Theorems

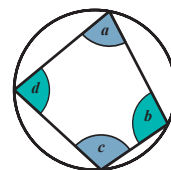
The angle at the centre of a circle is twice the angle at the circumference



Angles in the same segment are equal



The angle in a semicircle is a right angle (or 90°)



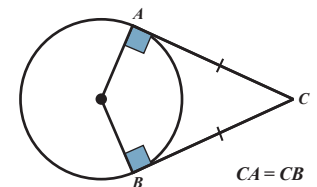
Opposite angles in a cyclic quadrilateral add to 180

$$a + c = 180$$

$$b + d = 180$$

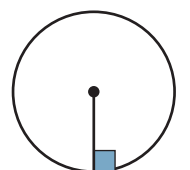


Alternate segment theorem

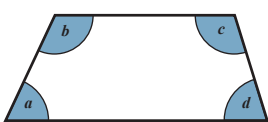


Tangents to a circle from an external point are equal in length

A tangent to a circle is perpendicular (or 90°) to the radius.



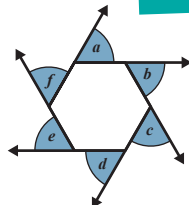
Quadrilaterals



$$a + b + c + d = 360$$

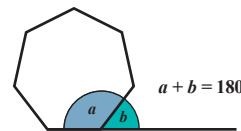
Angles in a quadrilateral add up to 360

Polygons



$$a + b + c + d + e + f = 360$$

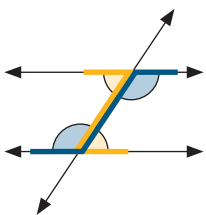
Exterior angles of a polygon add up to 360



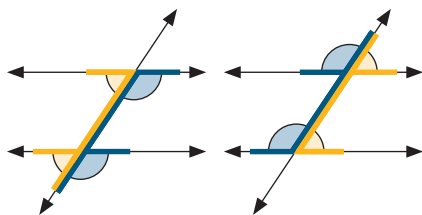
$$a + b = 180$$

The interior and exterior angle of any polygon add up to 180

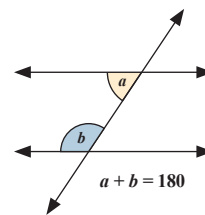
Parallel lines



Alternate angles are equal



Corresponding angles are equal



$$a + b = 180$$

Allied (or co-interior) angles add up to 180