

### Theorems

Learn off by heart these Theorems

- 1 Vertically opposite angles are equal
- 2 The measure of three angles of a triangle sum to 180
- 3 An exterior angle of a triangle equals the sum of the two interior opposite angles
- 4 If two sides of a triangle are equal in measure, then the angles opposite these sides are equal
- 5 Opposite sides and opposite angles of a parallelogram are respectively equal
- 6 A diagonal bisects the area of a parallelogram
- 12 The measure of the angle at the centre of the circle is twice the measure of the angle at the circumference, standing on the same arc.
- 14 A line through the centre of a circle perpendicular to a chord bisects the chord
- 16 If two triangles are equiangular, then corresponding sides are proportional
- 17 The square of the hypotenuse of a right-angled triangle is equal to the sum of the squares of the other two sides.

### Constructions

Must be able to do 6 constructions:

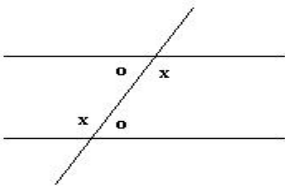
- **Perpendicular Bisector of a line**
- **Bisector of an angle**
- **Divide a line segment into 3 parts**
- **Incircle of a triangle**
- **Circumcircle of a triangle**
- **3 ways of drawing a triangle**

Know and understand *meaning* of these Theorems

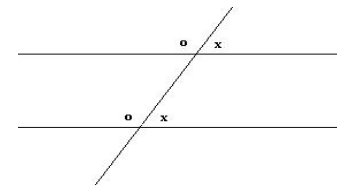
- 7 The diagonals of a parallelogram bisect each other.
- 8 The area of a triangle is half the base multiplied by the perpendicular height
- 9 The area of a parallelogram equals the base multiplied by the perpendicular height
- 10 Any point on the perpendicular bisector of a line segment [ab] is equidistant from a and b.
- 11 Any point on the bisector of an angle is equidistant from the arms of the angle
- 13 A line is a tangent to a circle K at a point t on K if it is perpendicular to the diameter through t
- 15 A line drawn parallel to one side of a triangle cuts the other two sides in the same proportion

## Geometry Q3 and 4 Paper 2

**Alternate Angles** are equal in measure third



**Corresponding Angles** are equal in measure



### Congruent Triangles

To show that triangles are congruent prove

- Side, Angle, Side (SAS) Two sides and an angle are equal  
OR  
Angle, Side, Angle (ASA) Two angles and a side are equal  
OR  
Side, Side, Side (SSS) Three sides are equal

**Always give the reasons why things are the same.**