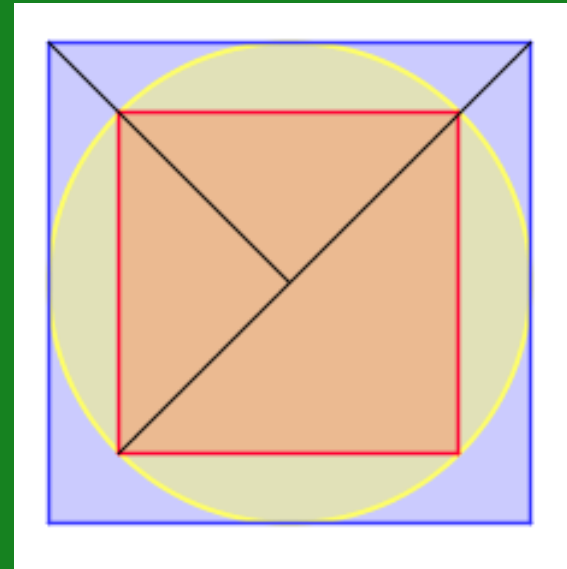
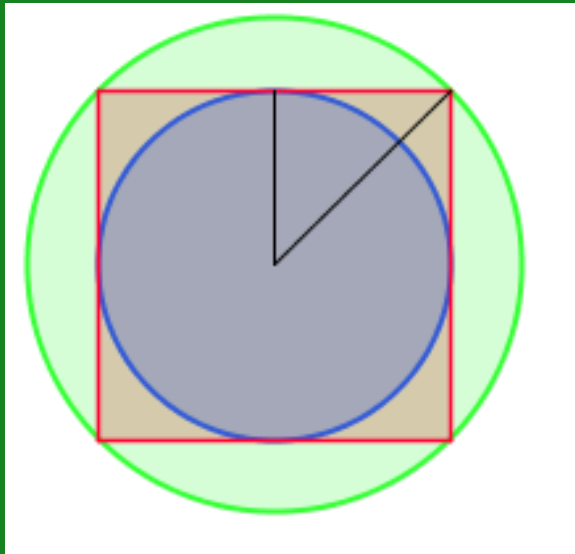


Polygons inscribed and circumscribed to a circle



*Liceo Linguistico Europeo "G.Parini"
Italy class II a.s. 2011/12*



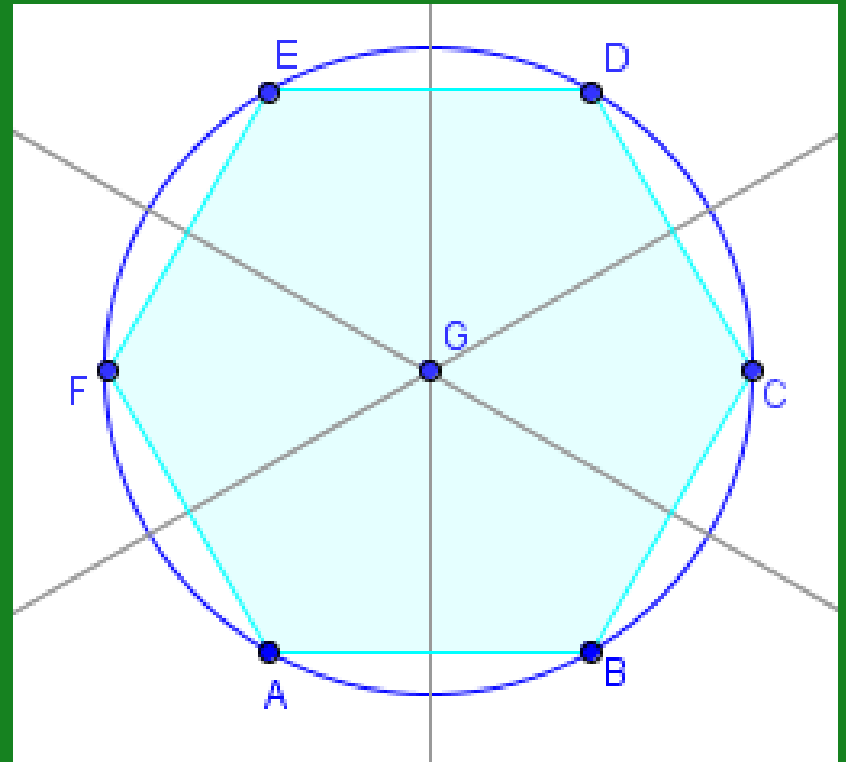
Creative Commons Public License



Inscribed polygons

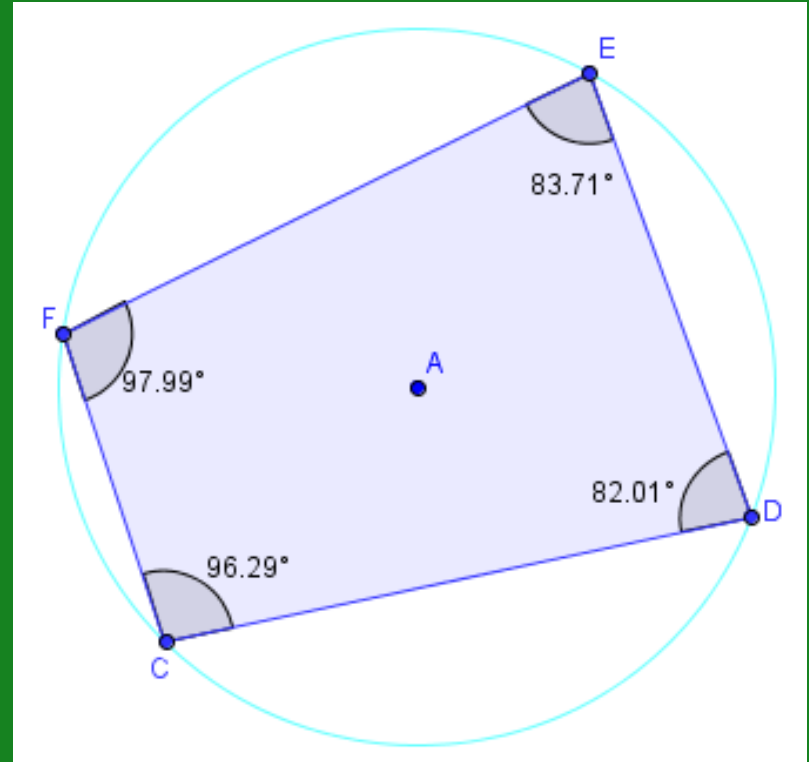
A polygon is inscribed in a circle when all its vertices are points on it.

The center of the circle coincides with the circumcenter of the polygon, that the meeting of the axes.



A polygon is inscribed in a circle if the axes of its sides meet at a single point.

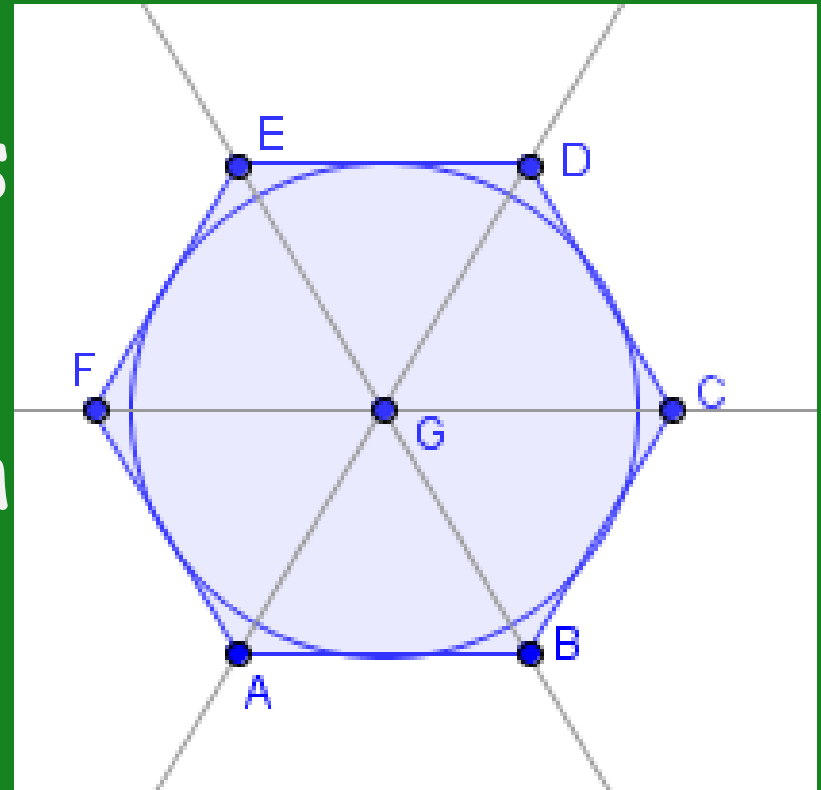
A condition because a quadrilateral is inscribed into a circle is that its opposite angles are supplementary.



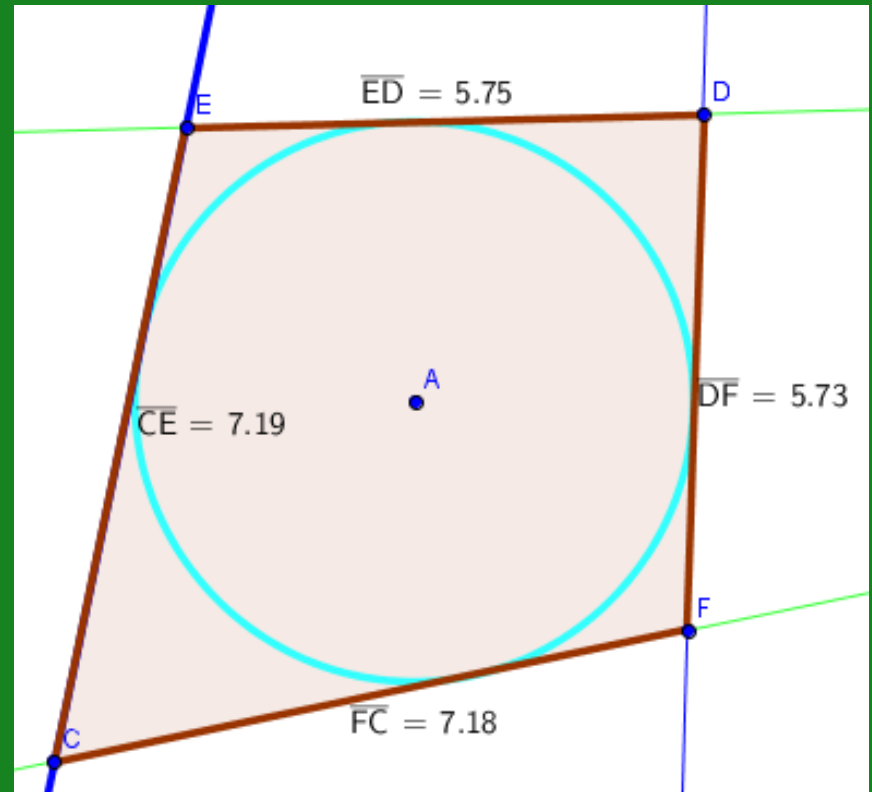
Circumscribed polygon

A polygon is circumscribed to a circle when its sides are tangent to it.

The center of the circle coincides with the incenter of a polygon, the intersection of bisectors.

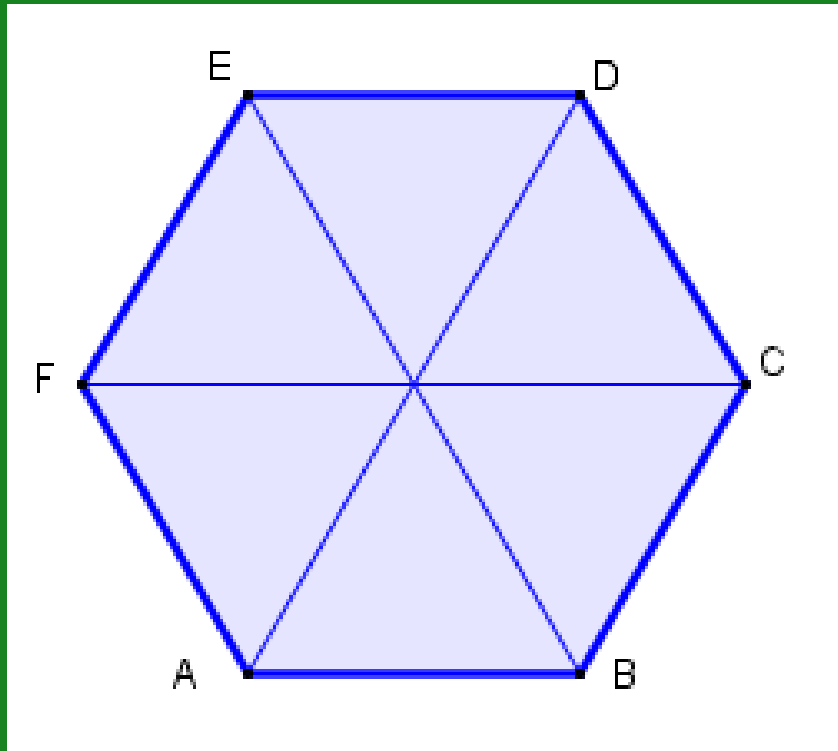


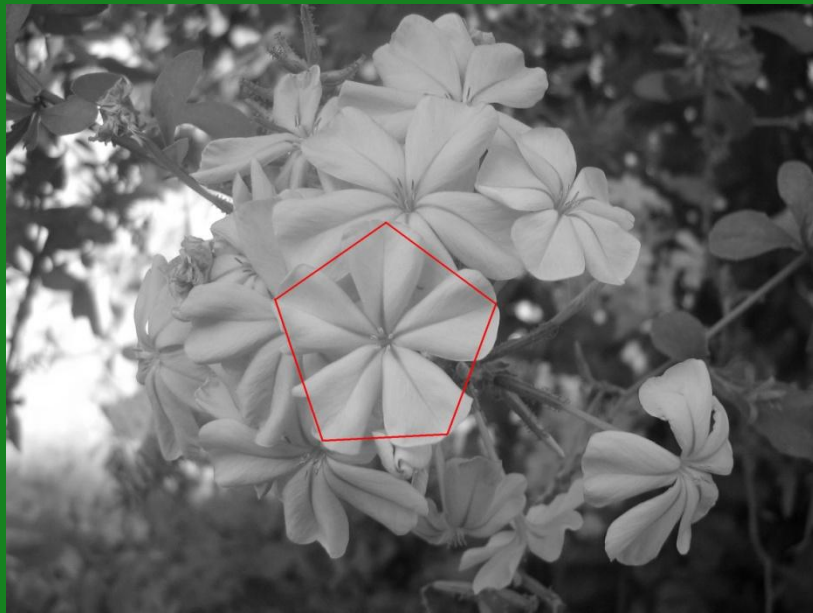
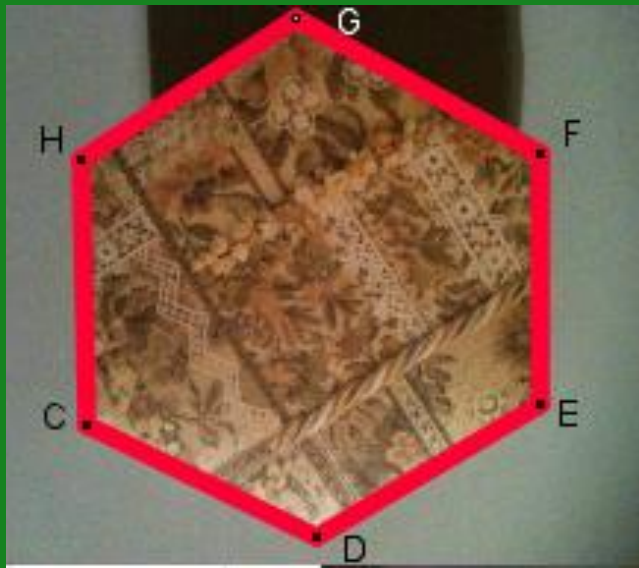
A condition because a quadrilateral is circumscribed to a circle is that the sum of the measurement of the opposite sides is equal.



Regular polygon

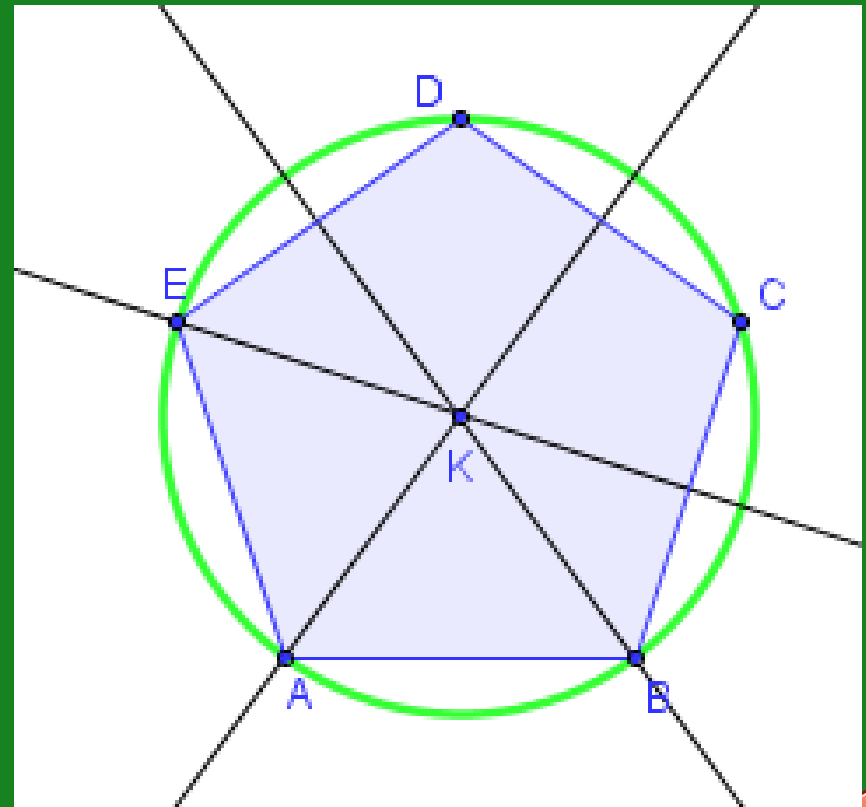
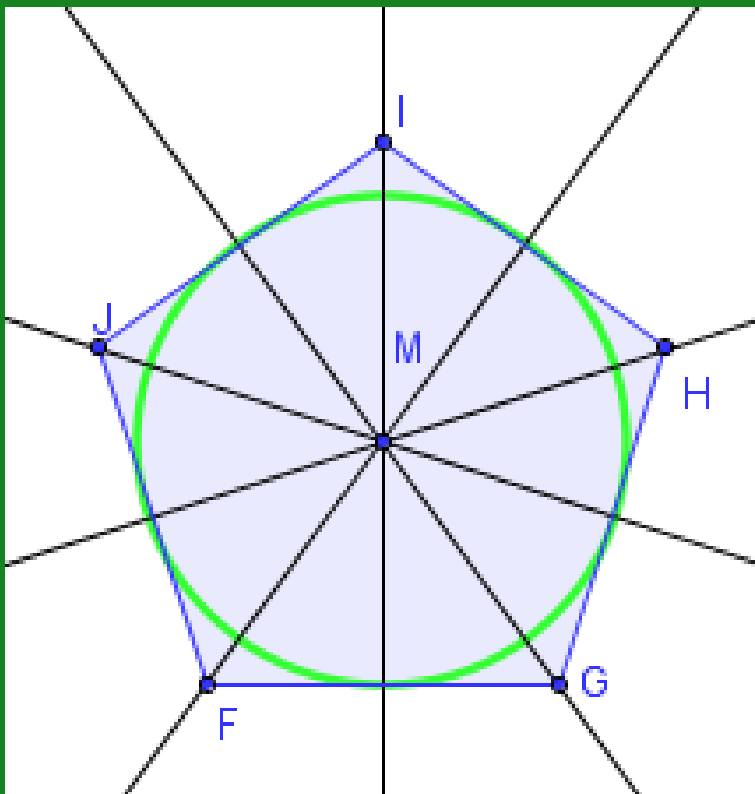
A polygon is regular if it is equilateral and equiangular





First theorem

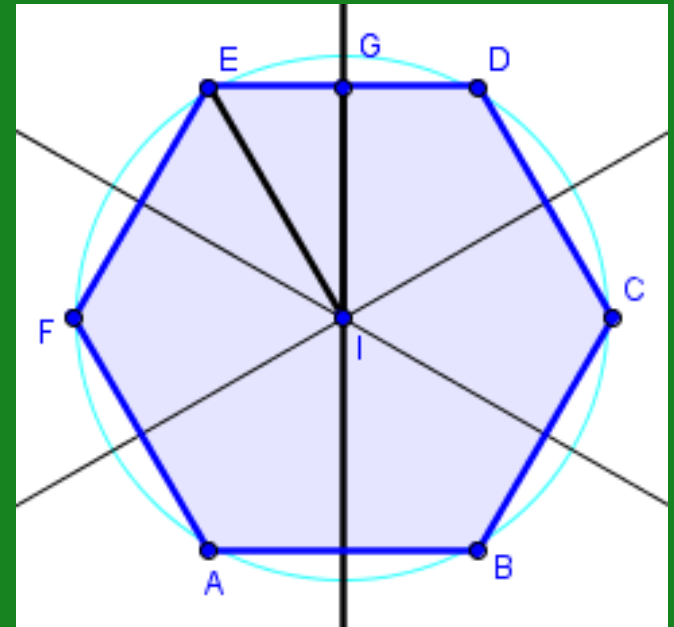
A regular polygon can be inscribed and circumscribed to a circle



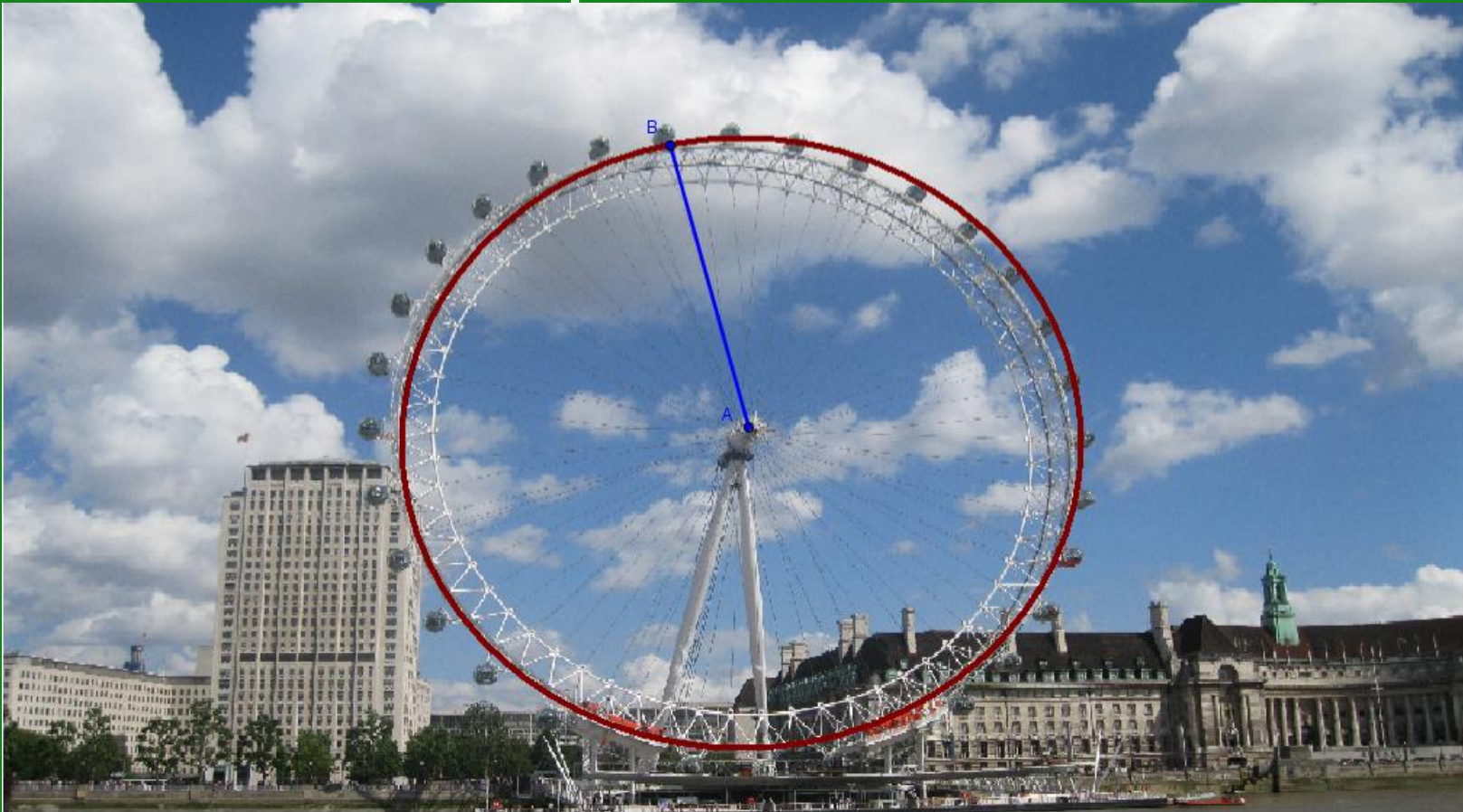
Second theorem

If we divide the circle into three or more arches of equal length and then we connect the points of division, we have a regular polygon inscribed in that circle.

The radius of the circumscribed circumference is said radius of the polygon.
The distance from the center of each side is called the apothem.



An example is the London Eye. We can see a circle with AB that correspond to the radius

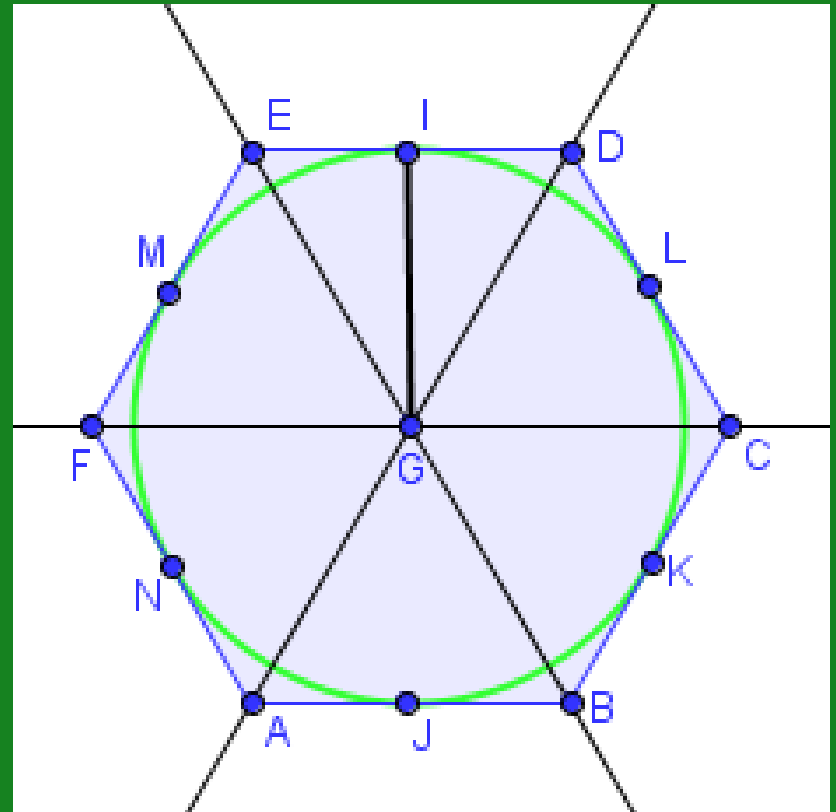


Another example is a dandelion. We can find a circle with AB as the radius

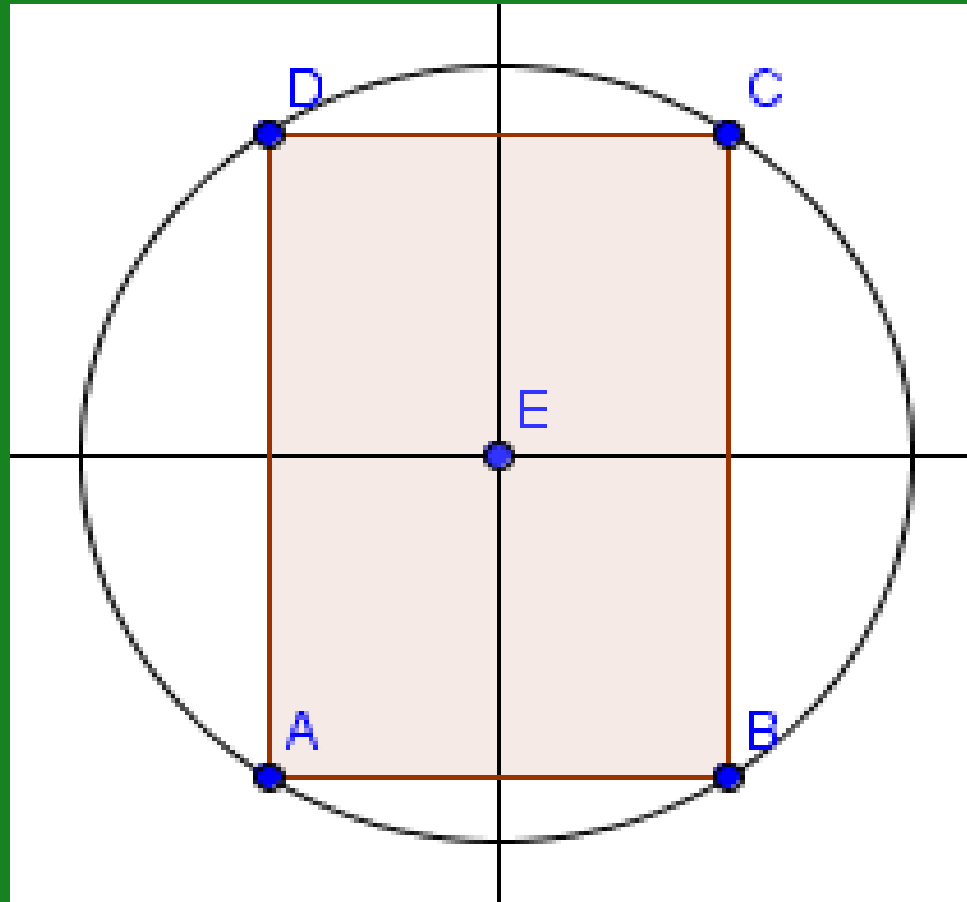


Third theorem

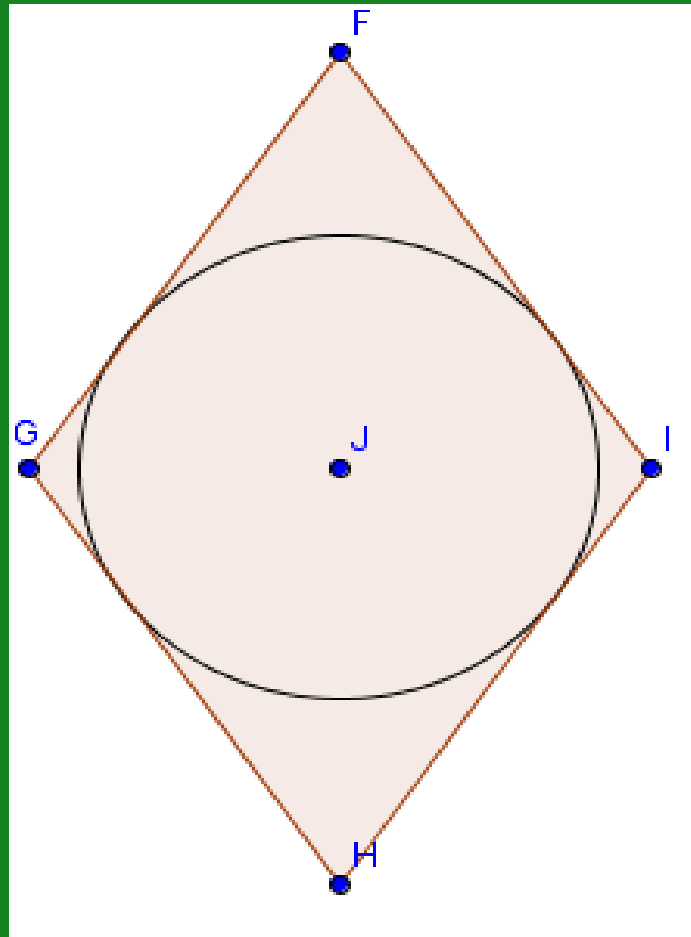
If we divide the circle into three or more equal arches and we connect the tangents at the points of division we have a regular polygon



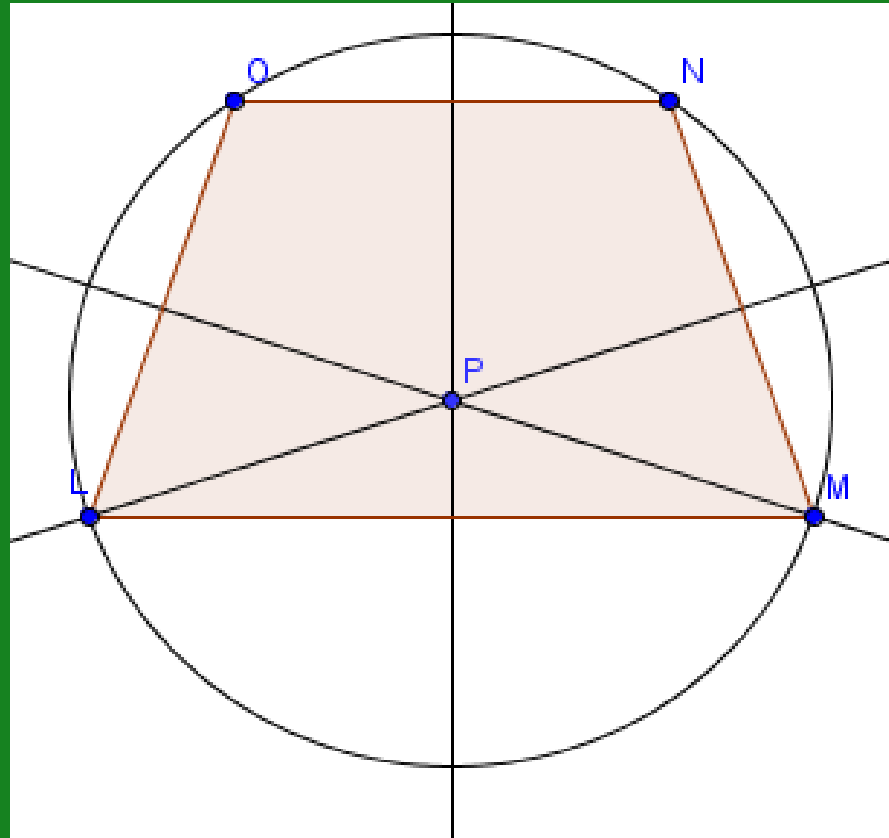
The rectangles are inscribed but not circumscribed to a circle



Diamonds are always circumscribed
but not inscribed to a circle



Isosceles trapezium is always inscribed to a circle



- *Bibliografia:*

M. Bergamini, A. Trifone, G. Barozzini
Matematica. Blu2

- *Sitografia:*

www.scuolaclic.altervista.org/cerchio/poligoni_ins_critti_nella_circonferenza.html

http://it.wikipedia.org/wiki/Centro_%28geometria%29

www.geogebra.org



By
Benedetta Conti
Arianna Gallo
Valentina Piazza
Sharon Cazzaniga
a.s.2011/12

