

Euclid's Postulates:

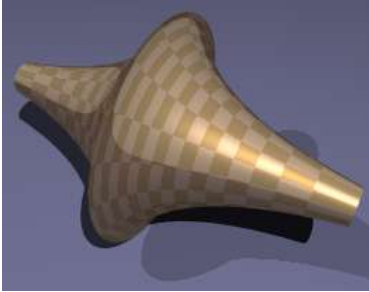
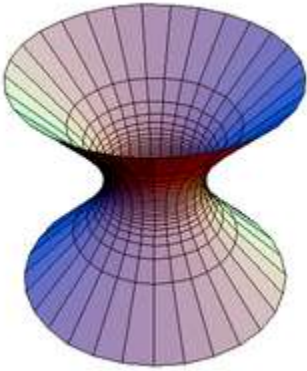
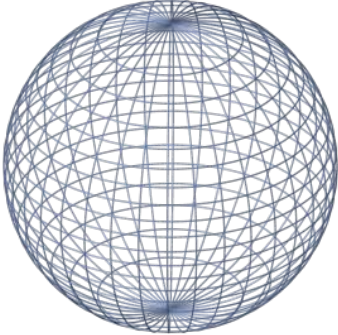
Postulate or axiom is a statement is taken to be true without proof.

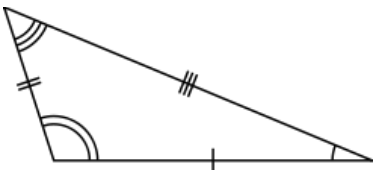
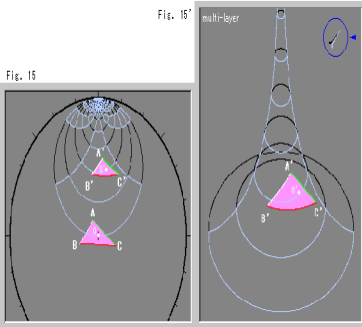
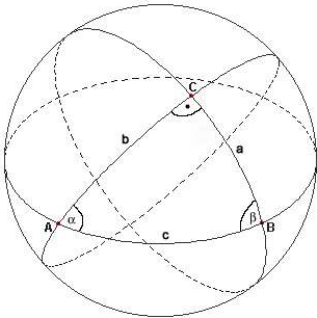
Euclid was a Greek mathematician (about 325 BC – 265 BC).

<http://www-groups.dcs.st-and.ac.uk/~history/PictDisplay/Euclid.html>

1. Two points determine one and only one line.
2. A straight line extends indefinitely far in either direction.
3. Given any length and any point, a circle can be drawn having the length as radius and that point as center.
4. All right angles are congruent.
5. *Parallel postulate* Given any straight line and a point not on it, there "exists one and only one straight line which passes" through that point and never intersects the first line, no matter how far they are extended.

Non-Euclidean Geometry

<i>Euclid</i>	<i>Gauss-Lobachevski-Bolyai</i>	<i>Rieman</i>
Geometry on a plane 	Geometry on a surface like a pseudosphere  or hyperboloid  http://en.wikipedia.org/wiki/Hyperboloid_structure	Geometry on a sphere 

<i>Euclid</i>	<i>Gauss-Lobachevski-Bolyai</i>	<i>Rieman</i>
Lines are infinite (straight)	Lines are infinite	Lines are finite (circles whose centers are at the center of the sphere)
Only one line can be drawn through point P and parallel to line m. (P is not on the line m)	More than one line can be drawn through P and parallel to m. (P is not on line m)	No line can be drawn through P and parallel to m. (P is not on line m)
Triangle: 	Triangle: 	 Triangle:
Two triangles can have the same size angles but different size sides. (similar triangles)	Two triangles with the same size angles must have the same size sides. (no similar triangles, only congruent)	
Sum of the measures of the 3 angles in a triangle is equal to 180.	Sum of the measures of the 3 angles in a triangle is smaller than 180.	Sum of the measures of the 3 angles in a triangle is greater than 180.