Godel's Theorem states that any system of logic containing finite arithmetic admits undecidable propositions which can neither be confirmed nor refuted. The key example of an undecidable proposition discussed in "Chapter 0" was that there is a subset of the reals with cardinality between that of the naturals and the reals. Euclid's fifth axiom states "Given any line and a point not on that line, there is a unique line through the point, parallel to (not intersecting) the given line". This is also noted in "Chapter 0" as an undecidable proposition and different geometries exist in which there are none, exactly one or an infinite number of "lines" through any given point "parallel" to a given line.

Spherical Geometry Model The 2 Sphere	Euclidean Geometry Model The 2-D Real Plane	Hyperbolic Geometry A Hyperboloid or Hyberbolic Disc
Lines are defined as great circles, geodesics which are locally linear, formed by the intersection of the sphere with a plane through the origin. There is no great circle through any point *x* not on a given great circle *l* parallel to (not-intersecting) the given great circle. The curvature of space is positive. The angle sum of any triangle (e.g. *xpq*) is greater than *p*.	Lines are straight lines in the plane. There is exactly one line through any point *x* not on a given line *l* parallel to (not-intersecting) the given line. The curvature of space is zero. The angle sum of any triangle (e.g. *xpq*) is p.	Lines are defined as intersections of a hyperboloid with a plane through the origin. They can be equivalently be projected on to a finite disc to become arcs intersecting the boundary circle at right angles. There are an infinite number of lines through any point *x* not on a given line *l* parallel to (not-intersecting) the given line. The curvature of space is negative. The angle sum of any triangle (e.g. *xpq*) is less than p.