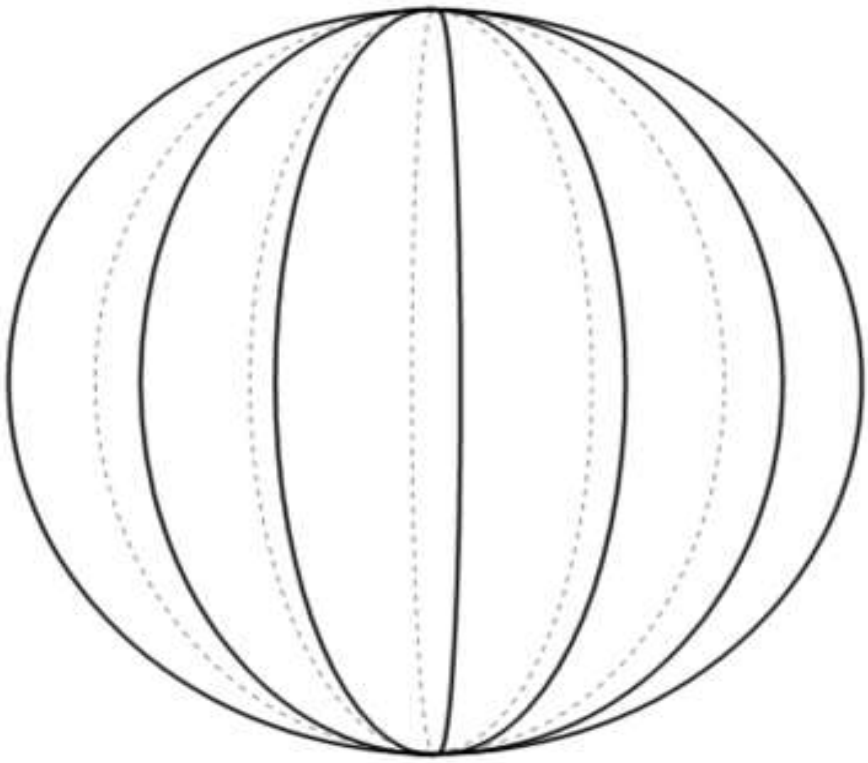
Spherical Geometry



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Euclidean Geometry	Spherical Geometry
1. Lines extends indefinitely and has no thickness or width.	1. Line is a great circle that divides the sphere into two equal half-spheres
2. A line is the shortest path between two points.	2. There is a unique great circle passing through any pair of non-polar points.
3. A straight line is infinite.	3. A great circle is finite and returns to its original starting point.
4. Given three collinear points, one point is always between the other two.	4. Given three collinear points, each point could be in the middle of the other two.
5. Perpendicular lines intersect at one point.	5. Perpendicular lines intersect at two points.
6. Perpendicular lines form four right angles.	6. Perpendicular lines form eight right angles.

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Euclid's Fifth Postulate (Parallel Postulate)

If there is a line and a point not on the line, then there exists exactly one line through the point that is parallel to the given line.

Is this true in spherical geometry? Why?

NO! There are no parallel lines in spherical geometry.

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