

Pretty Geometry

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Abstract: Newtonian mechanics uses the classical Euclidean geometry. Hyperbolic and elliptic geometries are applied in general relativity theory, astrophysics and cosmology.

A new discovery in geometry always creates a new field of physics. In this work, the author has found a new challenging theorem in spherical geometry.

Key Words: Spherical Geometry; Similar Triangles; New Theorem

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Construction: Let ABC and DEF be spherical equilateral triangles such that all the three interior angles are right angles and $DE = 2 AB$. Let R , S , and T are the mid points of DE , EF and FD respectively. Join A and T , T and S and S and R.

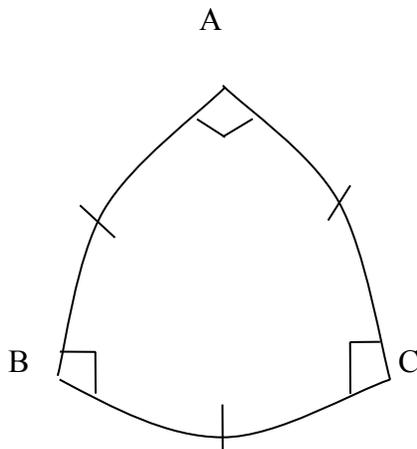


Figure 1 (Spherical)

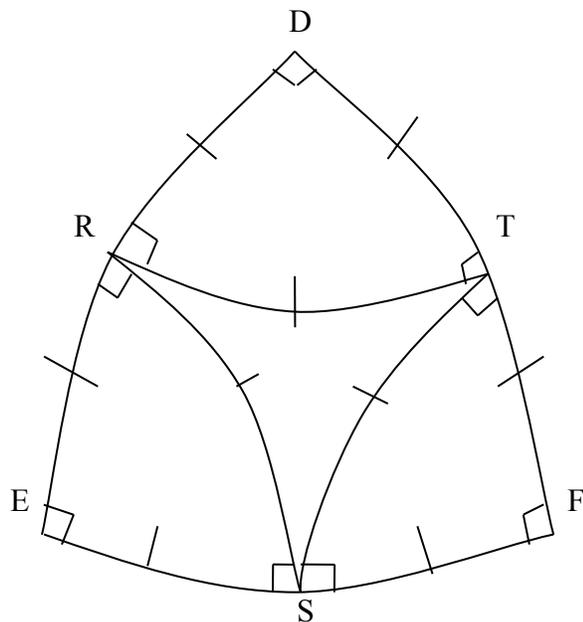


Figure 2 (Spherical)

Results:

By side angle side correspondence triangles ABC , ART , ERS and STF are congruent.

So all the interior angles of these equilateral triangles are right angles (1)

Using (1) in figure 2, we get that the sum of the angles,

$DRT + ERS = ESR + FST = DTR + STF = 180 \text{ degree}$ (2)

But $DRT + TRS + ERS = ESR + RST + FST = DTR + TRS + STF = 180 \text{ degree}$ (3)

Comparing (2) and (3) we get a contradiction.

Discussion:

Logically and geometrically our construction and findings are consistent. But this is a negative result.

Why do we obtain such a challenging spherical geometrical theorem? There is certainly a hidden mathematical mystery. Like Gödel's incompleteness theorems^[1], the author's work is to be studied seriously. Future probes may reveal new results.

References:

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