Differential Geometry

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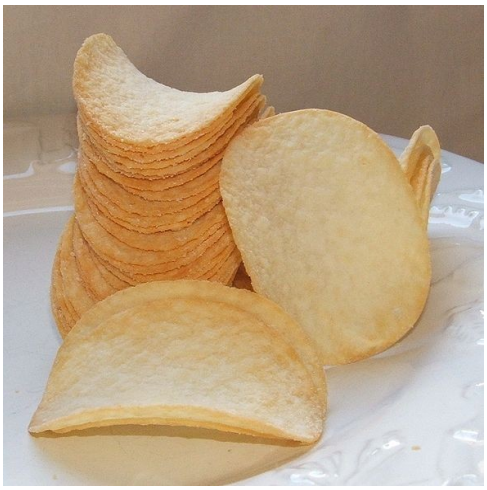
Had fun with Calculus 3 & still in the mood for more related material?

After a review of some Calculus 3 topics, Differential Geometry covers some mathematical background needed for understanding certain area of physics or computational chemistry.

- Curves in space and their curvature and torsion
- Surfaces in space and their coordinate patches, Gaussian curvature, Fundamental Forms
- Tensors, Manifolds and their curvature

and answers the following questions.

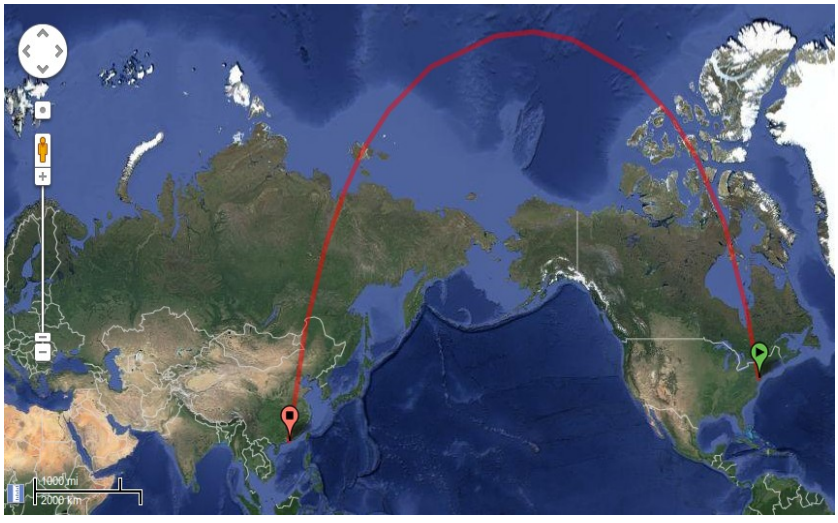
Can the triangle angles add up to 270 degrees?



Why is this negatively curved?

Do all lines intersect?

Philadelphia to Hong Kong: Is this really the shortest route?



Prerequisite:

Calculus 3 or any Calculus 3 equivalence.

Mathematics Minors:

This course can be used for the minor.