

# Geometric Manifolds and the Shape of Space

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MATH 331: Geometry

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# Outline

1. Geometric 2-Manifolds
2. Geometric 3-Manifolds
3. Cosmic Microwave Radiation
4. The Shape of Space

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# Definitions

- A **Geometric 2-Manifold** is a connected surface that is locally isometric to either the Euclidean plane, hyperbolic plane, or sphere.
- Cylinders and Cones (excluding cone point) are examples of 2-manifolds

# Gluings

- **Gluings** are when two edges or sides of a surface are “connected” and share the same set of points.

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# Geometric 3-Manifolds

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# Cosmic Microwave Radiation

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# The Shape of Space

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# References I



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