Notes on Geometry and Physics

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Chapter 1

Review on Manifolds

In this first section, we will briefly review the basics of manifolds. The following is definitely fundamental, I think. In this document, I will mainly focus on differential geometry, but the facts in this section will be applied to the study of topological aspects of manifolds. We should note that the following are important points.

1.1 Definition of the manifold and differentiation

1.2 Exercises

Chapter 2

Lie groups

Chapter 3

Gauge theory

Chapter 4

Morse theory

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