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Riemannian manifolds

Definition. Riemannian metric on a smooth manifold

A **Riemannian metric** g on a smooth manifold M is a section of Sym^2T^*M which is *positive definite*

$$\forall X \in TM, g_p(X, X) \geq 0$$

Definition. Riemannian manifold $(M, \mathcal{T}, \mathcal{A}, g)$

A [smooth manifold](#) $(M, \mathcal{T}, \mathcal{A})$ with a *Riemannian metric* g is called a **Riemannian manifold**.

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