§ Isotropc 各向同性、均質的

Let Π be a 2-dim subspace of T_pM and let X_p, Y_p be two linearly independent elements of Π。

Then $K(\Pi) := -\dfrac{R(X_p, Y_p, X_p, Y_p)}{\|X_p\|^2 \|Y_p\|^2 - \langle X_p, Y_p \rangle^2}$ is called the sectional curvature of Π。

If n=2，$K = \dfrac{R_{1212}}{g}, g = g_{11}g_{22} - g_{12}^2$

A Riemannian manifold is called isotropic at a point $p \in M$ if its sectional curvature is a constant K_p for every section $\Pi \subset T_pM$。

Moreover，it is called isotropic if it is isotropic at all points。

Theorem：
every 2-dim manifold is trivially isotropic。

Its sectional curvature $K(p) := K_p$ is called the Gauss curvature。

習作
Show that every point of R^3 is isotropic for the metric
$ds^2 = x^{-2}(dx^2 + dy^2 + dz^2)$

K=-1，the Riemannian space is more than just isotropic，it is a space of constant curvature。