HOMEWORK 2 MATH-GA 2350.001 DIFFERENTIAL GEOMETRY I
(due by October, 3, 2016)

1. Show that the vector bundle constructed in 6e) of the Howework 1 is isomorphic to the tangent bundle of $\mathbb{R}P^n$.

2. Let M be a compact manifold. Let $p : E \to M$ be a vector bundle. Show that one could embed E as a subbundle of a trivial vector bundle over M.

3. Let M be an n-manifold of class C^k. Show that M is trivializable if and only if $\Gamma_k(TM)$ is a free $C^k(M)$-module of rank n.