HW 4 (due on Sept 8, Friday, in the class)

Please write your answers clearly and rigorously. Write your name in plain lettering (as opposed to cursive) and also staple all the pages.

1. (Spivak Chapter 3, Problem 20 a)) Consider the space M obtained from $[0,1] \times \mathbb{R}^n$ by identifying $(0, v)$ with $(1, Tv)$ where $T : \mathbb{R}^n \to \mathbb{R}^n$ is a vector space isomorphism. Show that M can be made into a vector bundle over S^1. (This is called the generalised infinite Möbius strip.)
2. (Spivak Chapter 5, Problem 2) Find a nowhere 0 vector field on $\mathbb{R}$ such that all integral curves can be defined only on some interval around 0.