Definition 0.1. For a map $f\colon M \to N$ between manifolds,

- f is called an immersion if locally at each point of M, it is iso to $\mathbb{R}^m \to \mathbb{R}^n$ sending $x \mapsto (x, 0)$.
- f is an embedding if it is an immersion, injective and induces iso with its image.
- f is a submersion if it is locally iso to $(x, y) \mapsto x$.

Definition 0.2. f is a bundle if it is locally on N of the form $X \times V \xrightarrow{\pi_2} V$.