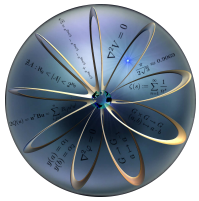

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principal bundle

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Defines	principal G-bundle

Let E be a topological space on which a topological group G acts continuously and freely. The map $\pi : E \to E/G = B$ is called a *principal bundle* (or *principal G-bundle*) if the projection map $\pi : E \to B$ is a locally trivial bundle.

Any principal bundle with a section $\sigma : B \to E$ is trivial, since the map $\phi : B \times G \to E$ given by $\phi(b, g) = g \cdot \sigma(b)$ is an isomorphism. In particular, any G-bundle which is topologically trivial is also isomorphic to $B \times G$ as a G-space. Thus any local trivialization of $\pi : E \to B$ as a topological bundle is an equivariant trivialization.