Ex 3.20

$\Gamma(f)$ homeo to U.

Φ_f clearly bijection $: U \to \Gamma(f)$

Want is: Φ_f^{-1} cts: $\Gamma(f) \to U$.

Φ_f homeomorphism $\Rightarrow$ $\Gamma(f)$ is open
$\Rightarrow \exists$ open ball B around $\Phi_f^{-1}(z)$

so $\forall z \in \Gamma(f)$ $(\Phi_f^{-1}|_{\Phi_f(B)})$ is a chart.

Get Hausdorff & 2nd countability easily.

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unit n-sphere : set of

Lemma 3.23 (Gluing Lemma)

Let $\{A_i\}$

$f^{-1}(K) \cap A_i = f_i^{-1}(K)$

QQ: is the graph of a diffable f a diffable manifold?

$S \hookrightarrow X$ subset

with the ~~same~~ if this is not the same as $f^{-1}(B)$ might on the ~~RHS~~.