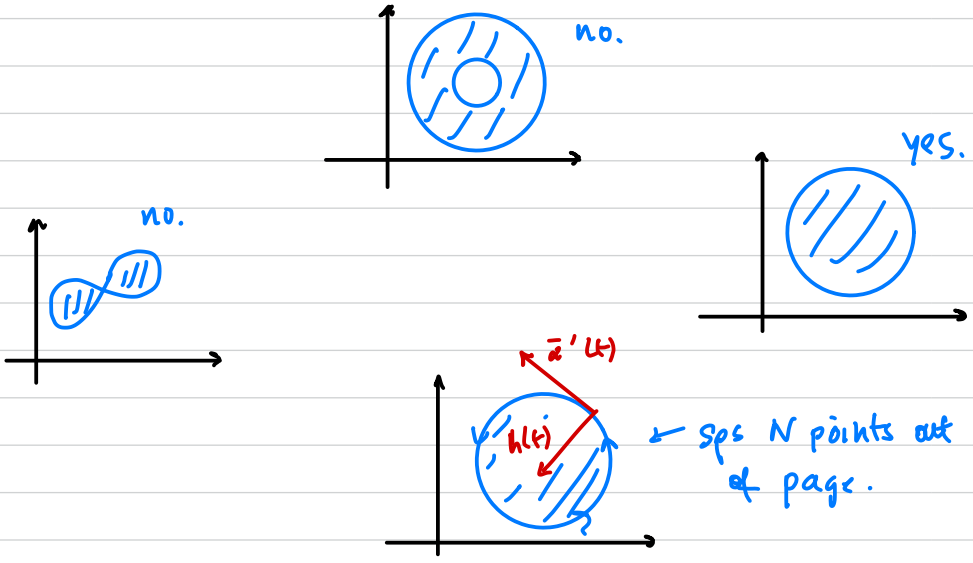
Defn Sps S is oriented. A region $R \subset S$ (subset) is **simply-connected** if A is homeomorphic to a disk and the boundary of R is the image of a s.-c.-p.r. curve $\bar{\alpha}$.

(topologically same! 1-1, onto, cts, cts inv.)

Basically: no holes.



The bdy curve $\bar{\alpha}$ is **positively-oriented** relative to R if the orthog basis $\{\bar{\alpha}'(t), \bar{h}(t), N\}$ is right handed and $\bar{h}(t)$ points in to R. (R on left)

some chart $(\bar{x}, U)$

Defn Sps $R \subset \bar{x}(U) \subset S$ and f is a diffble function on S.

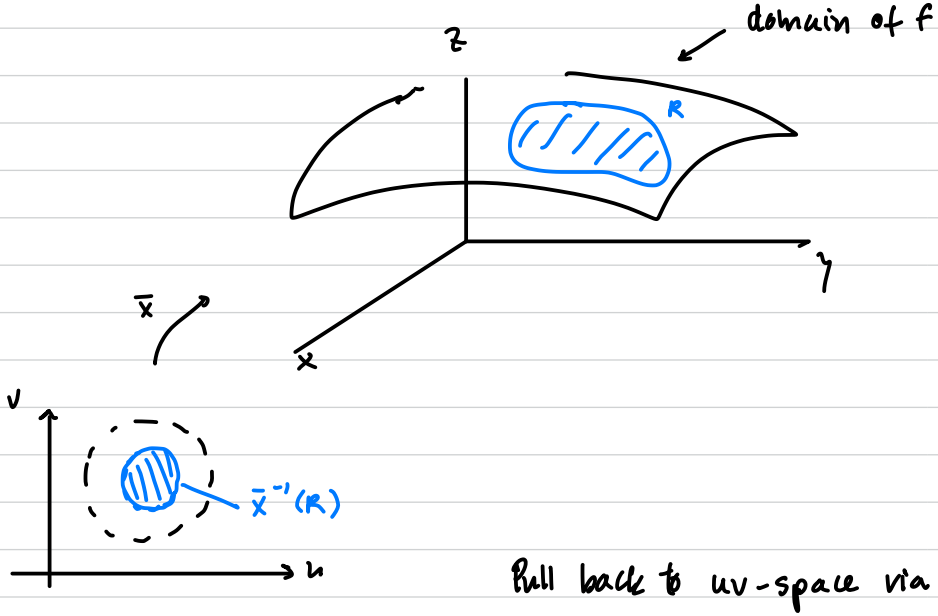
The integral of f over R, denoted $\iint_R f\,dA$ is:

$$\iint_R f\,dA \simeq \iint_{\bar{x}^{-1}(R)} f(\bar{x}(u,v)) \sqrt{EG - F^2}\,du\,dv$$

accounts for area distortion by $\bar{x}$

notation

how to compute



Pull back to uv-space via chart...

can show defn is indep. of choice of chart.