(1) S be a smooth surface in R^3 and let $p \in S$ be any point.
   (a) Prove that near p is equal to the level set $\{g = c\}$ where g is a smooth functions on an open set in R^3 containing p and c is a regular value of g.
   Hint: Extend a local parameterization $f\colon\ U \to S$ (where U is an open set in $\mathbb{R}^2$) to a local diffeomorphism F between open sets in R^3 such that f is the restriction of F to the xy-plane.
   (b) Show that near p the surface S is either the graph of a smooth function $z = h(x,y)$ or $y = h(x,z)$ or $x = h(y,z)$.
   (c) Prove that the boundary of the cube $[-1,1]^3$ in $\mathbb{R}^3$ is a surface but not a smooth surface.
   Do the same for the set
   $S = \{(x,y,z) \in \mathbb{R}^3 |$ such that $|x|^{2/3} + |y|^{2/3} = 1\}$.