

4. A map  $f : X \rightarrow Y$  is said to be an *open map* if for every open set  $U$  of  $X$ , the set  $f(U)$  is open in  $Y$ . Show that  $\pi_1 : X \times Y \rightarrow X$  and  $\pi_2 : X \times Y \rightarrow Y$  are open maps.

(from Subspace Topology)