Problem 19) Let the horizontal axis be marked by integers $1, 2, 3, \cdots$, which identify the individual sets $S_1, S_2, S_3, \cdots$. Let the vertical axis also be marked by integers $1, 2, 3, \cdots$, but these indices now identify the individual elements of each and every (countable) set. On the two-dimensional mesh thus created, the point (m, n) represents the n^{th} element of the m^{th} set. The set of points on this mesh can be counted similarly to those assigned to rational numbers m/n, depicted in figure 1.3. We conclude that the union of $S_1, S_2, S_3, \cdots$ represents a countable set.