- Os exercícios devem ser submetidos como um arquivo em formato PDF (digitado ou manuscrito digitalizado), no prazo estipulado, na página http://www.ic.unicamp.br/~lehilton/mo417a/submit/.
- Só serão aceitas listas com todas questões respondidas, mas serão corrigidos **apenas** os itens sorteados em https://www.randomresult.com/ticket.php?t=293916Z96JA.

Questão 1. (CLRS) Resolva o Problema 34-3 (somente itens d,e,f); seja bastante conciso. Não plagie.

Mapmakers try to use as few colors as possible when coloring countries on a map, as long as no two countries that share a border have the same color. We can model this problem with an undirected graph $G = (V, E)$ in which each vertex represents a country and vertices whose respective countries share a border are adjacent. Then, a k-**coloring** is a function $c : V \rightarrow \{1, 2, \ldots, k\}$ such that $c(u) \neq c(v)$ for every edge $(u, v) \in E$. In other words, the numbers $\{1, 2, \ldots, k\}$ represent the k colors, and adjacent vertices must have different colors. The graph-coloring problem is to determine the minimum number of colors needed to color a given graph. Let 3-COLOR be the problem to decide whether a graph has a 3-coloring. Show that 3-COLOR is NP-complete.