2/25.2) Nicely done. Good observation to see that if there is a solution with $(1, y, z)$ then there is a $z' \neq z$ such that $(1, y, z')$ is also solution and in this way generate an infinite number of solutions. Of course, there is nothing special about 1 so that whenever (x, y, z) is a solution there is a $z' \neq z$ such that (x, y, z') is a solution. Then, you can permute the entries. Try and prove by descending that every solution can be arrived at this way: Make a graph on solutions: $(x, y, z) \sim (x', y', z')$ if and only if $\{x, y, z\}\ cap\{x', y', z'\}$ has two elements. Define a path from one solution s to s' to be a sequence $s = s_0, s_1, \ldots, s_n = s'$ such that $s_i \sim s_{i+1}$ for all i. Suppose you have an arbitary solution $s = \{x, y, z\}$. You want to show that there is a path from (1,1,1) to s. Let $s_m = \{x', y', z'\}$ be in the connected component of s and chosen so that $x' + y' + z'$ is minimal but not (1,1,1). Get a contradiction.