(a) Let \( \{w_1, w_2, w_3\} = \{1, 2, 1\} \), and \( K = 2 \). Then the greedy algorithm here will use three trucks, whereas there is a way to use just two.

(b) Let \( W = \sum_i w_i \). Note that in any solution, each truck holds at most \( K \) units of weight, so \( W/K \) is a lower bound on the number of trucks needed.

Suppose the number of trucks used by our greedy algorithm is an odd number \( m = 2q + 1 \). (The case when \( m \) is even is essentially the same, but a little easier.) Divide the trucks used into consecutive groups of two, for a total of \( q + 1 \) groups. In each group but the last, the total weight of containers must be strictly greater than \( K \) (else, the second truck in the group would not have been started then) — thus, \( W > qK \), and so \( W/K > q \). It follows by our argument above that the optimum solution uses at least \( q + 1 \) trucks, which is within a factor of 2 of \( m = 2q + 1 \).