▶ **Review Exercise 9-6**

(a) Does there exist a graph with degree sequence $6, 6, 5, 5, 4, 4, 4, 4, 3$? Explain.

(b) Answer part (a) for the sequence $8, 8, 7, 6, 5, 4, 3, 2, 1$?

Solution. (a) The sum of the degree is 41, an odd number, contradicting Proposition 9.2.5. Thus, the sequence $6, 6, 5, 5, 4, 4, 4, 4, 3$ is not graphical.

(b) Suppose such a graph existed. It would have nine vertices and two of which have degree 8. Hence, these two would be joined to all vertices except themselves, and thus every vertex would have degree at least 2. This contradicts the fact that there is a vertex of degree 1. □