Prove that each of the following problems is NP-hard.

1. Given an undirected graph G, does G contain a simple path that visits all but 374 vertices?

2. Given an undirected graph G, does G have a spanning tree in which every vertex has degree at most 374?

3. Given an undirected graph G, does G have a spanning tree with at most 374 leaves?

[Hint: Consider the corresponding problems with 1 or 2 in place of 374.]