1. What is the definition of class P?
2. Suppose that $L$ is a set of positive integers and suppose that there is an algorithm that takes an integer $n$ and tells you whether $n \in L$ in time O(*n*2) . Can you conclude that $L$ is in P based on that? Explain why or why not.
3. Suppose that $L$ is a set of strings, and suppose that there is an algorithm that takes a string $x$ and tells you whether $x \in L$ in time O($2^{n}$), where $n=|x|$. Can you conclude that $L$ is not in P based on that? Explain why or why not.
4. A *triangle* in a simple graph consists of three mutually adjacent vertices. Show that the problem of determining whether a simple graph contains a triangle is in P.