1. Arrange in increasing order: $O(n^2 \log n), O(n!), O(n^3), O(n^4), O(3^n), O(n^{100}), O(n^{\sqrt{n}}), O(n^{2\sqrt{n}}), O(2^n)$.

2. Give network counterexamples to each statement below:
   A. A transport network with a unique maximal flow has a unique minimal cut.
   B. A transport network with a unique minimal cut has a unique maximal flow.
   C. If $F$ is a flow and $(S, T)$ is a cut so that $F(T, S) = 0$, then $(S, T)$ is a minimal cut.