1. Give an example of a language $L$ such that $|L| = 5$ and $|L^2| = 16$.

2. Exhibit languages $A$ and $B$ such that neither is a subset of the other, but $A^* = B^*$. Explain clearly why your examples work.

3. Exhibit a string over the alphabet \{a, b\} that does not belong to \( (b, ab)^* \circ \{a\}^* \). Justify your answer. (No formal proof is needed.)