4. Let $N, (V, A)$ be a network. Also, let $(X, \overline{X})$ and $(Y, \overline{Y})$ be minimum cuts in $N$. Prove that both $(X \cup Y, \overline{X \cup Y})$ and $(X \cap Y, \overline{X \cap Y})$ are minimum cuts in $N$.

5. Use the Ford-Fulkerson Algorithm to find a maximal flow and minimal cut in the following network (with indicated capacities):