(a) MINCUT(N):
    $f \leftarrow$ FORDFULKERSON(N) # find a maximum flow in N
    construct the residual network N_f
    $S \leftarrow \{$all vertices reachable from s in $N_f\}$ (found using BFS)
    return $(S, V - S)$

As explained in lecture, the Ford-Fulkerson algorithm can be implemented to run in worst-case time $\Theta(n^2m)$. Constructing the residual network takes time $\Theta(n+m)$, and so does running BFS on N_f. So the total running time is dominated by the Ford-Fulkerson algorithm at $\Theta(n^2m)$.

(b) Use the same algorithm as above but run it on the "reverse network" N', equal to N with all edge directions reversed.

Since the original algorithm guarantees that $|S|$ is minimum, this algorithm guarantees that $|T|$ will be minimum.