HW for 2019-06-14
(due: 2019-06-24)

1: PageRank bounds Show that the PageRank of any node $i$ is at least $[\alpha \pi_{\text{ref}}]_i$.

2: Katz with more edges Argue that adding an edge to a graph increases the Katz centrality of all nodes.

3: Estrada on average For a symmetric matrix $A = QAQ^T$, the matrix exponential is

$$\exp(A) = Q \exp(\Lambda) Q^T.$$  

Use this formula to write the Estrada centrality of a node as the weighted average of exponentials of eigenvalues of $A$. 