1046-15-91 **Taiji Tsutsui*** (tsutsuit@my.hiram.edu), PO Box 1234, Hiram, OH 44234, and **Rachel Ellen Cranfill** (rachel_cranfill@hmc.edu). *The Minimum Semidefinite Rank of a Graph.*

A Hermitian matrix is a complex matrix that is equal to its conjugate transpose. Given an n by n Hermitian matrix A, we associate a graph G(A) whose vertex set is $\{1, \ldots, n\}$ and whose edge set consists of unordered pairs $\{i, j\}$ if and only if the (i, j)th entry of A is nonzero. The collection of Hermitian positive semidefinite matrices that share a common graph G is denoted P(G). Define the minimum semidefinite rank of G or msr(G) to be the minimum rank over all matrices in P(G). We provide a characterization of graphs G for which msr(G)=3 and some necessary conditions for when msr(G) is equal to ts(G) - 1, where ts(G) is defined to be the number of vertices in a maximum induced tree of G. (Received July 22, 2008)