1067-Z1-2032 **Mary E Allison*** (mallison@uwyo.edu), 360 N 9th street Apt. 102, Laramie, WY 82072. *Mean First Passage Times and the Kemeny Constant on Tree Networks.*

The mean first passage time from state i to state j denoted as $m_{i,j}$ of a finite regular ergodic Markov chain with n states is the expected number of time steps to reach state j for the first time given that chain was initially in state i. The Kemeny constant is sometimes defined as the average of all the mean first passage times $m_{i,j}$ such that $i = 1 \dots n$ and $j = 1 \dots n$. The mean first passage times and the Kemeny constant provide useful information about the short term behavior of the Markov chain. For a symmetric Markov chain defined on a graph G the Kemeny constant is related to the trace of the group inverse of a weighted Laplacian matrix for the graph, so known results pertaining to the group inverse of the Laplacian for trees allow us to generate formulas for the Kemeny constant on tree networks. (Received September 22, 2010)