MAD 3105 DM1 **Quiz 4s** 7 Feb 1996 **Name:** _____

Show **ALL** work for credit; be neat; and use only **ONE** side of each page of paper.

1. Find the smallest sum of an independent set of entries from the matrix below and indicate an independent set of entries that has this smallest sum.

$$\begin{bmatrix} 1 & 3 & 5 & 7 \\ 2 & 8 & 6 & 4 \\ 5 & 4 & 1 & 2 \\ 6 & 4 & 3 & 5 \end{bmatrix}$$

2. Given $a_0 = 5, a_1 = 0$ and $a_n = a_{n-1} + 6a_{n-2}$ for $n \geq 2$. Prove by induction that $a_n = 3 \cdot (-2)^n + 2 \cdot 3^n$ for $n \geq 0$.