

$$P = \begin{pmatrix} \ddots & \ddots & \ddots & \ddots & \ddots & \\ & q & 0 & 0 & p & 0 \\ & & q & 0 & 0 & p \\ & & & q & 0 & 0 & p \\ 0 & & & & q & 0 & 0 & p \\ & & & & \ddots & \ddots & \ddots & \ddots \end{pmatrix}$$

