Quiz 5

Consider the Markov chain defined by

$$P = \begin{bmatrix} 0.3 & 0.2 & 0.5 \\ 0.5 & 0.1 & 0.4 \\ 0.5 & 0.2 & 0.3 \end{bmatrix}$$

on the states labeled $\{1, 2, 3\}$. Assume we start in state 1

Determine

1) $P(X_0 = 1, X_2 = 2)$

2) $P(X_3 = 2 \mid X_1 = 1)$

3) $P(X_3 = 3, X_2 = 2 \mid X_0 = 1, X_1 = 1)$