4.22a Suppose that two teams play a series of games that ends when one of them has won 4 games. Suppose that each game played is, independently, won by team A with probability 2/5. Let $X$ be the number of games played. Find the pmf of $X$.

$$P(X) = \begin{cases} 
\left( \frac{x-1}{3} \right) \left( \frac{2}{5} \right)^4 \left( \frac{3}{5} \right)^{x-4} & x = 4, 5, 6, 7, \\
0 & \text{o/w}.
\end{cases}$$