6.9-8 Let $W_1 < W_2 < \cdots < W_n$ be the order statistics of n independent observations from a $U(0, 1)$ distribution.

(a) Show that $E(W_r^2) = r(r+1)/(n+1)(n+2)$ using a technique similar to that used in determining that $E(W_r) = r/(n+1)$.

(b) Find the variance of W_r.