

15. Suppose that $X_i, i = 1, 2, \dots, n$ are IID Bernoulli(p).
- (a) Show that the variance of the MLE of p attains the Cramér-Rao Lower Bound.
 - (b) For $n \geq 4$, show that the product $X_1X_2X_3X_4$ is an unbiased estimator of p^4 , and use this fact to find the best unbiased estimator of p^4 .