

- (a) Find the distribution of $Y_i = \ln(2X_i - X_i^2)$.
- (b) Find the maximum likelihood estimator (MLE) for θ . Show that it is an asymptotically unbiased estimator for θ .
- (c) Find the uniformly minimum variance unbiased estimator (UMVUE) for θ .
- (d) Is the UMVUE an efficient estimator of θ ?