

4. Let X_1, \dots, X_n be a random sample from the PDF

$$f(x | \theta) = \theta x^{-2}, \quad 0 < \theta \leq x < \infty.$$

- (a) Find a sufficient statistic for θ .
- (b) Find the method of moments estimator (MME) of θ , if it exists.
- (c) Find the maximum likelihood estimator (MLE) of θ .