

229. A random sample of size n is drawn from a distribution with probability density function:

$$f(x) = \frac{\theta}{(\theta+x)^2}, \quad 0 < x < \infty, \quad \theta > 0$$

Determine the asymptotic variance of the maximum likelihood estimator of θ .

(A) $\frac{3\theta^2}{n}$

(B) $\frac{1}{3n\theta^2}$

(C) $\frac{3}{n\theta^2}$

(D) $\frac{n}{3\theta^2}$

(E) $\frac{1}{3\theta^2}$