

MS Exam ISRC Fall 2012

1: Let $X_i = A * f(i) + w_i$; $i=1, \dots, N$ where $\{w_i\}$ is white Gaussian noise with variance σ . $\{f_i > 0\}$ is a known sequence such that $\sum_{i=1, N} f_i \rightarrow \text{inf}$. Find the Cramer-Rao lower bound for an estimate of A. Does an efficient estimator exist? What is its variance as $N \rightarrow \text{inf}$.