

ECE 561: Detection and Estimation Theory
Spring 2009
Issued: April 27, 2009

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- 1)
Find the variance of the MVUE for μ and σ^2 and the following Gaussian problem:

$$\mathbf{Y} = \mu \mathbf{S} + \mathbf{N},$$

where \mathbf{S} is a known vector, and \mathbf{N} is a Gaussian vector with zero mean and covariance matrix $\sigma^2 I_n$.

- 2)
Find the Fisher information and the Cramer-Rao lower bound for the following two estimation problems:
 - a) Estimating the parameter λ of a Poisson distribution, based on n iid samples.
 - a) Estimating the parameter θ of a uniform distribution over $[0, \theta]$, based on n iid samples.
- 3)
Levy, problem 4.14, page 165.
- 4)
Levy, problem 4.15, page 166.