

Stat 401, HW 2

Problems on the Method of Maximum Likelihood

Do the following problems from the text.

§6.1 - 9,14,15

§6.2 - 22(b),25(a),28, 32(this is hard).

Problems on Random Intervals

1. Suppose that X has normal distribution with mean 5 and variance 1. Compute

$$P(5 \in (X - 1, X + 1)).$$

2. Suppose that X is as in the previous problem. Compute

$$P(2X \in (X - 1, X + 1)).$$

Note that in this second problem things are “as random as possible”. You are asked to compute the probability that a *random variable* is in a *random interval*. This type of probability occurs in the study of “prediction intervals” whereas the first type of probability occurs in the study of “confidence intervals”.