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HW #4

1. Given a sequence of data, what is the likelihood function?

A likelihood function measures the goodness of fit.
$$\mathcal{L}(\theta \mid x) = p_\theta(x) = P_\theta(X = x),$$

2. What is MLE?

Maximum likelihood estimation is a method of estimating the parameters of a probability distribution by maximizing a likelihood function. This makes it so that the data is most probable under the assumed statistical model.
$$L_n(\theta) = L_n(\theta; \mathbf{y}) = f_n(\mathbf{y}; \theta)$$

3. What is the asymptotic distribution for this MLE?

Asymptotic distribution is a probability distribution that is the "limiting" distribution of a sequence of distributions.

4. What is hypothesis testing?

Hypothesis testing is the use of statistics to determine the probability that a given hypothesis is true.