

Homework 2

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Due: 2026-02-03

Problems

1. Weisberg: 2.1.1, 2.1.2, 2.1.3
2. Weisberg: 2.4.1, 2.4.2, 2.4.3
3. Weisberg: 2.12
4. Suppose we are working with the model $Y_i = \beta x_i + \varepsilon_i, \varepsilon_i \stackrel{iid}{\sim} N(0, \sigma^2)$.
 - a. What is the MLE of β for this model?
 - b. What is the interpretation of β_1 ?
 - c. Why might this model be problematic for many types of data?
 - d. Describe how to transform the response Y_i so that the model is appropriate in general.
5. Explain why $\hat{\beta}_0$ and $\hat{\beta}_1$ in the simple linear regression model are normally distributed.