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Statistics: Homework 2

6.3 Given $\hat{\theta} = 2\overline{X}_n$ and $X_1, \ldots, X_n \sim \text{Uniform}(0, \theta)$,

$$\text{bias}(\hat{\theta}) = \mathbb{E}(2\overline{X}_n) - \theta$$
$$= 2n^{-1}\mathbb{E}(\sum_{i=1}^{n} X_i) - \theta$$

7.2

7.9

8.7

9.2

9.6