Exercise 7 TMA4295

Problem 1: 6.3 from the book

Problem 2: 6.6 from the book

Problem 3: 6.9b from the book

Problem 4:

Let $X_1, \ldots, X_n$ be i.i.d. uniformly distributed on the interval $[0, \theta]$.

a) Prove that the statistic

$$T(\boldsymbol{X}) = \max\{X_1, \ldots, X_n\}$$

is sufficient for θ.

b) Find a sufficient statistic also when $X_1, \ldots, X_n$ are uniformly distributed on the interval $[-\theta, \theta]$.

Problem 5:

Let $X_1, \ldots, X_n$ be i.i.d. Bernoulli-distributed with parameter p. Let

$$\bar{X}_n = \frac{1}{n} \sum_{i=1}^{n} X_i$$

Use Theorem 6.2.13 to prove that $\bar{X}_n$ is minimal sufficient.