Homework 3
1. Chapter 9, problem 1
2. Chapter 9, problem 2 (a), (b), (c)
3. Chapter 9, problem 3 (a) and (c). For part c, we need only to find the MLE $\hat{\theta}$.
4. Chapter 9, problem 5.
5. Let $X_1, X_2, \ldots, X_{20}$ i.i.d. $\sim$Geometric($p$) with $P(X_1 = x) = p(1-p)^{x-1}I(x \geq 1)$.
   (a) Find the method of moments estimator for $p$.
   (b) Find the MLE of $p$.
   (c) Suppose the data are:
       \[ 1 \ 2 \ 1 \ 1 \ 1 \ 3 \ 2 \ 2 \ 1 \ 3 \ 1 \ 1 \ 2 \ 1 \ 2 \ 2 \ 4 \ 1 \ 2 \ 2 \]
       Find the values of the estimators in (a) and (b).