Complete the following problems:

- DeGroot & Schervish (2011) §5.11 #4
- DeGroot & Schervish (2011) §5.11 #6
- DeGroot & Schervish (2011) §5.11 #8
- Suppose that $X_1, \ldots, X_n$ form a random sample from the Uniform distribution on $[0, 1]$. Let $Y_1 = \min(X_1, \ldots, X_n)$ and $Y_n = \max(X_1, \ldots, X_n)$. Show that $Y_1$ and $Y_n$ both have Beta distributions.
- Let $X$ be a distribution with mean $\mu$ and variance $\sigma^2 < \infty$. What proportion of observations do NOT lie within 3.5 standard deviations of $\mu$?
- DeGroot & Schervish (2011) §6.2 #5