Math 483, Fall 2019. Homework 10
Due December 5.

NAME _____

From the book: Chapter 11, problem 6

Problem A. For the data $X_1, ..., X_n \sim \mathtt{Uniform}(0, \theta)$ distribution, consider the prior $f(\theta) \propto \theta^a, \theta > 0$. Let the data be $0.1, 0.25, 0.57, 0.66, 0.91$ with $n = 5$. Plot the posterior density for $a = 0, a = 2, a = 4$.

Problem B. Consider $X_1, ..., X_n \sim \mathcal{N}(\theta, 1)$ and the prior $f(\theta)$ uniform on $[-1, 1]$. Find and sketch the posterior density of θ.

Problem C. For the data $X_1, ..., X_n$ from Exponential distribution with parameter $\theta = 1/\beta$ (where β is the mean), and prior $f(\theta) \propto e^{-\alpha\theta}$, with $\theta > 0$ and known $\alpha > 0$, find the posterior density of θ and the posterior mean.