Name _____

Student Number _____

STA 260 S2020 Exam Practice 2

Let $X_1, \ldots, X_{n_1}$ be a random sample from a geometric distribution with parameter θ, and let the prior distribution of θ be uniform on the interval from zero to one.

1. (70 Points) Find the density of the posterior distribution, including the constant that makes it integrate to one. Name the distribution.

2. (30 Points) A random sample of size $n = 150$ yields $\sum_{i=1}^{n} = 163$. Estimate θ with the posterior expected value. The answer is a number.