Stat 340 Exam I Make-up Problems
Due: Monday October 25, 2021 at 11:59 pm

You may use your book, notes, and lecture slides. You may not use the internet or other people to help you solve these problems.

1. (5 points) Let X and Y have the joint probability

$$f(x, y) = c(2x + 3y) \qquad 0 < x < 1 \qquad 0 < y < 1 \qquad x + y \leq 1$$

Solve for c and then find $P(X \leq \frac{1}{2}, Y \leq \frac{1}{2})$.

2. (5 points) Let X be a gamma distributed random variable with support between 0 and ∞. Let $Y = A + B * X$. Derive the probability density function of Y. You must clearly state the four steps used to solve this problem.