

MTH 337, Sample Quiz 9

Fall 2020

You will have **15 minutes** to take the actual quiz in Gradescope. The quiz will start exactly **5 minutes** after the start of class, 9:15 AM, and will close at 9:30 AM.

1. What is the probability of the following:
 - When flipping a fair coin and rolling a 6 sided dice at the same time, landing on heads and rolling a 5.
 - Rolling a total of 10 with a 6 sided dice and a 12 sided dice.
2. Two positively charged particles are moving to the right on the x-axis starting from the origin. The two particles are less likely to move forward the further away from the origin they are, but they are also more likely to move forward the closer they are to each other. The likelihood each particle will move one unit to the right can be modeled by

$$r(p) = \frac{p^k}{|x_1 - x_2| + 1}$$

where p is a number between 0 and 1 that measures their reluctance to move away from the origin, and x_1 and x_2 are the positions of the two particles. Write a function that models this scenario.