MA155 Projects

First Name_____ **Last Name**_____

Project 2: General Probability and Discrete Probability Distribution Applications
Due Date: xx/xx/xx @ xx on Canvas (xx Points)

Submission Instructions:

- Once you are done with the task, submit your project using this MS Word file on canvas.
- Use your first and last name to name the file.

Scenario:

A health insurance policy covers visits to a doctor's office. Each visit costs $230. The annual deductible on the policy is $300. For a policy, the number of visits per year has the following probability distribution.

Number of Visits	0	1	2	3	4	5	6
Probability	0.6	0.15	0.1	0.08	0.04	0.02	0.01

1. **(xx points)** Use Microsoft Excel to create a table with the following column headings: Visit, Probability, Annual Deductible, Cost, and Payment.
   Note: Cost = Visits x Cost per Visit; Payment = MAX(0, Cost – Annual Deductible)

2. A policy is selected at random from those where costs exceed the deductible.
   i. **(x points)** Calculate the probability that this policyholder had exactly 3 office visits (Round your answer to three decimal places).

   ii. **(x points)** Calculate the probability that this policyholder had exactly 5 office visits (Round your answer to three decimal places).

iii. **(x points)** Briefly comment (no more than two sentences) on your results from parts 2.i) and 2.ii).

3. Use the Table in part 1 to answer/respond to the following questions:
   i. **(xx points)** Find the expected payment for visits to a doctor on this policy.

   ii. **(xx points)** Find the standard deviation of payments for visits to a doctor on this policy.

   iii. **(xx Points)** Briefly comment (no more than two sentences) on your results from parts 3.i) and 3.ii).