Name: _____
MATH 100
Fall 2022
Additional Problems:
Interest & Probability

Problem 1. If you deposit $12,000 into a savings account that earns 6.6% annual interest, compounded monthly, find the amount in the savings account after 4 years. How much interest have you earned?

Problem 2. Suppose you take out a 5-year loan for $8,500 at 4.2% annual interest, compounded semiannually. How much do you owe at the end of the loan? How much interest did you pay?

Problem 3. Suppose you place $500 into an account that earns 5.1% annual interest, compounded daily. How long until you have saved $600?

Problem 4. Suppose you take out a loan for $7,000 at 7.9% annual interest, compounded quarterly. How long until you owe $10,000?

Problem 5. You have a rabbit farm with 45 rabbits. Their colors, broken down by the sex of the rabbit, are summarized below.

	White	Brown
Male	10	15
Female	8	12

(a) What percentage of the rabbits are female?

(b) What percentage of the rabbits are white?

(c) What percentage of the rabbits are white and male?

(d) What percentage of the rabbits are brown or female?

(e) What percentage of the female rabbits are brown?

Problem 6. The table below classifies a group of voters according to sex and political affiliation.

	Democrat	Republican	Independent
Male	110	180	240
Female	150	130	190

(a) What is the probability that a voter was male?

(b) What is the probability that a voter was Republican?

(c) What is the probability that a voter was a male Democrat?

(d) What is the probability that a voter was female or Independent?

(e) What is the probability that a voter was an Independent, assuming that they were male?

Problem 7. A programming class has 50 students, 14 students had some familiarity with Python but not C#, 8 students had familiarity with C# but not Python, and 12 students had familiarity with both.

(a) What percentage of students had seen Python or C#?

(b) What percentage of students had only seen C#?

(c) What percentage of students had seen Python and C#?

(d) What percentage of students had seen neither Python nor C#?

(e) What percentage of students had seen only Python or neither programming language?

(f) What percentage of students that had seen C# had also seen Python?

Problem 8. Suppose that 60 people are interviewed about the electronics that they own. Of the people interviewed, 40 say that they own a laptop, 25 say they own a desktop, and 10 say that they have both.

(a) What is the probability that a randomly selected person owns only a laptop?

(b) What is the probability that a randomly selected person owns only a desktop?

(c) What is the probability that a randomly selected person owns both a laptop and a desktop?

(d) What is the probability that a randomly selected person owns neither a desktop or a laptop?

(e) What is the probability that a randomly selected person that owns a laptop also owns a desktop?