1) You are considering investing in your brother-in-law's start-up venture. To buy a stake in his company, you must contribute $10,000. Based on your knowledge of the company (and your brother-in-law) you estimate the following possible outcomes for your investment in one year's time:

- 30% chance the company will go under and you will not be able to retrieve any amount of your investment
- 40% chance your investment will be worth half ($5000)
- 25% chance the company will break even and your investment will be worth the same
- 5% chance the company will be a runaway success and your investment will be worth $200,000

Assuming no inflation or discounting the time value of money, what is the expected value of a decision to invest in your brother-in-law's company, including the initial $10,000 investment?

2) In finance, a call option on a share of stock gives the owner of the option the right -***but not the obligation***- to purchase a share of that stock at a set price within a specified period of time.

Today a certain stock is currently trading at $100 per share. In a year from now there is a 20% chance that the stock price will drop to $60, a 40% chance that the price will remain at $100, and a 40% chance that the price will rise to $120.

Given this information, what is the value of a call option that gives you the optional right to buy a share of this stock at a set price of $100 in one year's time? Assume no inflation or discounting the time value of money.

3) One quarter of the employees at a company picnic are vegetarian. Of the vegetarians, 20% are also gluten-free. There are three additional gluten-free employees among the 60 non-vegetarians. Among all of the employees at the picnic who do not eat gluten, what percentage of them are vegetarian?

Questions 4-6 refer to the following information:

A West Los Angeles-based food truck offers two meals: the "Wildcat" Burger Meal for $8 and the Mushroom Tacos Meal for $9. Both meals come with Cactus Fries and a Cactus Soda and can be upgraded to "Texas Sized" for an additional $2. 40% of the truck's customers buy the "Wildcat" Burger and 60% buy the Mushroom Tacos. Of the customers who buy the burger, 70% buy the $2 size upgrade, while customers who buy the tacos elect to go "Texas-Sized" only 25% of the time.

4) If the food truck served 139 patrons outside a party at the Natural History Museum one night, what is the expectation for that night's dollar sales?

5) If a customer chooses to go "Texas-Sized," what is the probability that he or she ordered the burger?

6) If the customer from Question 5 comes back to the truck the next night and orders the same basic meal, what is the probability that he or she will again choose to go "Texas-Sized?"

Questions 7-10 refer to the following information:

The entire grade for a 300-student introductory Computer Science course at a large public university is determined by each student's score on a 100-point final exam. The cumulative grade distribution for the class and the minimum exam score needed to earn each grade are listed in the table below:

Letter Grade	Grade Points	Cumulative Grade Distribution	Minimum Exam Score Needed for Grade
F	0.0	5%	--
D	1.0	15%	62/100
C	2.0	35%	67/100
B	3.0	70%	75/100
A	4.0	100%	85/100

7) How many students in the class earned a C or better?

8) What is the average GPA for the class?

9) If a student scored below 75/100, what is the probability that the student failed?

10) If 10% of the students who earned an A are upgraded to an A+, how many students will earn an A+?