**Quiz #1 NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Business Analytics, Fall 2016**

**To be worked individually.**

1. (4 points) Suppose your corporation has developed a new test for the Zombie Apocalypse virus. Suppose further that the test is administered to the remaining 100,000 survivors of the Zombie Apocalypse. Of these survivors, 1% have the virus but have not yet developed the disease (eg. they are asymptomatic). The remaining 99% do not have the virus. The test has a probability of 99% of returning a positive test result if administered to someone who actually has the virus (even if they are asymptomatic). It also has a probability of 98% of returning a negative test result if administered to some who does NOT have the virus.

* 1. How many can be expected to return negative test results and how many can be expected to return positive test results?
  2. On average, how many of those who tested negative will actually be virus-free and how many of those who tested positive will actually have the virus?

1. (6 points) Continuing the situation from problem 1: Those that test positive on the first test are given a second test which uses a completely different test methodology from the first. The second test has a probability of 98% of returning a positive (negative) test result if administered to a person who actually does (does not) have the virus.
2. On average, how many people will receive the second test?
3. On average, how many of the people who receive the second test will test positive for the virus?
4. On average, what proportion of those who test positive on the second test will actually have the virus?