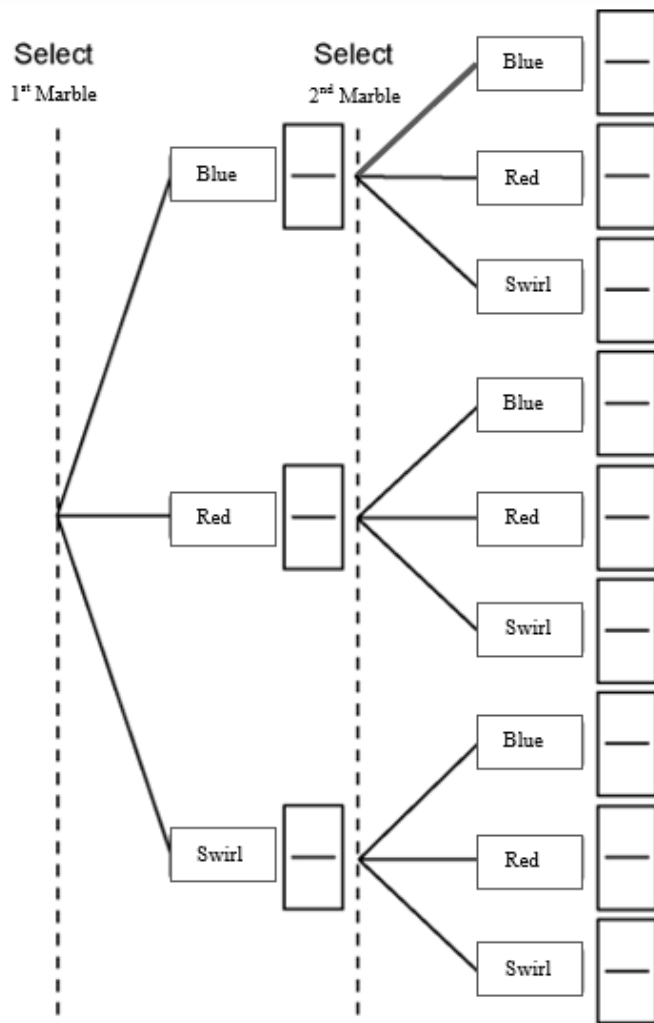**Name:** _____ **Date:** _____

Answer the following questions to practice using what you've learned. Print this test. Then, write your responses in the space provided. Scan or take a picture of your completed test, upload it to your computer (as a .pdf or .jpg file) and submit the assignment to the appropriate dropbox.
No credit will be given to answers without sufficient supporting evidence/work.

1. Consider the scenario: **A container holds 8 blue marbles, 6 red marbles, and 10 swirl marbles. You select two marbles, one at a time (without replacement), with your eyes closed.**   (16 points *total*)

a. Fill in the probability ratios on each branch of the tree diagram. Do not use decimals or percentages. Remember to reduce fractions whenever possible. (12 points: 1 point per probability ratio)

b. Use the diagram to answer the questions below. Do not use decimals or percentages. Remember to reduce fractions whenever possible. (4 points: 1 point per question)

Questions:

1. How many ways can you select the marbles?

2. How many ways can you select exactly one red marble?

3. What is the probability that you select two swirl marbles? Show your work.

4. What is the probability that you select a blue and then a red marble? Show your work.

No credit will be given to answers without sufficient supporting evidence/work.

2. Consider the scenario: **The numbers 1 through 25 are written with red marker on slips of paper, while the numbers 26 through 50 are written with black marker on slips of paper. All the papers are folded, put into a bowl, and stirred around. One paper is randomly selected.**
Do not use decimals or percentages. Remember to reduce fractions whenever possible.   (10 points *total*)

a. Identify P(a number less than 5) =

b. Identify P(a number written in black) =

c. Identify P(a number written in black, that is also less than 5) =

d. Find the probability of selecting a number less than 5 or a number written in black. Convert the fraction into a percentage. Show your work.

e. Identify P(a number written in red) =

f. Identify P(a multiple of 5) =

g. Identify P(a number written in red, that is also a multiple of 5) =

h. Find the probability of selecting a number written in red or a number that is a multiple of 5. Convert the fraction into a percentage. Show your work.

No credit will be given to answers without sufficient supporting evidence/work.

3. Consider the scenario: **24 red checkers and 18 black checkers are placed into a bag. Checkers are selected one at a time, and then replaced. Each time a checker is picked, its color is recorded. Find the probability of selecting a black checker exactly 6 times in 10 selections.**
Do not use decimals or percentages. Remember to reduce fractions whenever possible.   (10 points *total*)

a. Identify the values for *n* and *r*.

b. What result is considered a success? What is the probability of selecting this result?

c. What result is considered a failure? What is the probability of selecting this result?

d. Write the formula (insert values for variables, but do not solve or simplify) one should use to solve a problem like this.

e. Simplify the formula in part d. In other words, calculate the probability of selecting a black checker exactly 6 times in 10 selections. Show all your work. Leave your answer in fraction form.

f. Summarize the problem including the answer in a complete sentence with correct grammar, punctuation, spelling, and capitalization (Convert the fraction from part e into a percentage. Round the decimal to the hundredths place.).