

Name: _____

Date: _____

Testing Learning Task 2 (Part 2)

Suppose there is a 5 question multiple choice test. Each question has 4 answers (A, B, C, or D).

1) Can this multiple choice test be considered a binomial setting? Why or why not? 2) If you are strictly guessing, calculate the following probabilities:

a) $P(0 \text{ correct}) = {}_5C_0 \left(\frac{1}{4}\right)^0 \left(\frac{3}{4}\right)^5$

b) $P(1 \text{ correct}) =$

c) $P(2 \text{ correct}) =$

d) $P(3 \text{ correct}) =$

e) $P(4 \text{ correct}) =$

f) $P(5 \text{ correct}) =$

3) Draw a histogram of the probability distribution for the number of correct answers on graph paper. Label the *x-axis* as the **number of correct answers**. The *y-axis* should be the **probability of x**.

4) Based on the distribution, how many problems do you expect to get correct?

5) Based on the distribution, how likely is it that you would pass if you were strictly guessing? (*Calculate the probability of getting 4 or 5 correct.*)

6) What is the probability that you will get less than 3 correct?

7) What is the probability that you will get at least 3 correct?

Now let's look at tests, such as the SAT, when you are penalized for guessing incorrectly. Suppose you have a multiple choice test with five answers (A, B, C, D, or E) per problem. The probability your guess is **correct** = $\frac{1}{5}$ and the probability that your guess is **incorrect** = $\frac{4}{5}$.

Suppose the test that you are taking will award you one point for each question correct, but penalize you by $\frac{1}{4}$ of a point for each question you answer incorrectly. Test scores will be rounded to the nearest 10 percent.

8) If you strictly guess and get exactly 4 correct and 6 incorrect, what would be your score?

9) If you take a 10 question test and know that 8 questions are correct, should you guess the answers for the other two questions?

10) If you take a 10 question test and know that 6 questions are correct, should you guess the answers for the other 4 questions?

11) Given that you answered all 10 questions and you knew that 6 were correct, answer the following questions:

a) If you can eliminate one of the answer choices for each of the 4 questions for which you are guessing, what would your expected score be?

b) If you can eliminate two of the answer choices for each of the 4 questions for which you are guessing, what would your expected score be?

c) If you can eliminate three of the answer choices for each of the 4 questions for which you are guessing, what would your expected score be?