

Good luck on this exam. Read each question carefully and answer it completely, showing all your work. Be sure to pay attention to the point value for each question, which serves to provide you with a sense of the time it should take to complete your answer to the question (1 pt = 1 minute). As always, the Skidmore Honor Code is in effect and you'll write out the Honor Code at the end of the exam. Take a deep breath and begin... [And have a wonderful weekend!!!]

1. You've learned about the process of hypothesis testing. The following questions are related to that process. [3 pts]

a. What is a Type I Error?

b. What is the definition of power?

c. Suppose that you knew that the probability of a Type II Error in your study was .40, what level of power would you have in that study?

2. You've also learned about the important concept of effect size. [4 pts]

a. What two measures of effect size have you learned to compute?

b. In general, how would you define effect size (i.e., what are the measures of effect size measuring)?

c. If you were dealing with a situation in which you were investigating a small effect size, what sort of strategy would you invoke to ensure that you would best be able to reject H_0 ?

3. What does the Central Limit Theorem say should become increasingly true as your sample size increases? [3 pts]

4a. For the sample of quiz scores shown below, estimate the parameters of the population from which they were drawn: [15 pts for a and b]

	Quiz	Quiz ²
	8	64
	7	49
	3	9
	8	64
	9	81
	10	100
	7	49
	6	36
	8	64
	9	81
	7	49
	6	36
	8	64
	3	9
	4	16
	8	64
Sum	111	835

4b. Using the data above, test $H_0: \mu = 8$.

5. Answer the following questions assuming that they are dealing with a population of SAT-M scores, which are normally distributed with $\mu = 500$ and $\sigma = 100$. [25 pts]

a. What is the probability that a person would achieve SAT-M scores between 500 and 600?

b. What is the probability that a person would achieve SAT-M scores between 600 and 650?

c. What is the probability that a person would achieve SAT-M scores between 450 and 575?

d. What SAT-M scores would be achieved by the lower 85% of the population?

e. What SAT-M scores would be achieved by the upper 2.5% of the population?

f. What is the probability that you would obtain a sample mean (M) SAT-M of 550 or more from this population with $n = 25$?

g. For samples of $n = 16$, what mean SAT-M scores would comprise the middle 90% of the sampling distribution of the mean?

6. In the lab exercise for z-scores, you learned about signal detection theory in the context of a memory experiment. [mystery bonus]

What memory paradigm was used in that laboratory?

What is the name of the first psychologist to study memory systematically?

What does d' measure?