

MATH 155 Study Guide for Test #2

The test will cover Chapter 3 and Sections 4.1-4.6 of Chapter 4.
You may use a calculator on Part II, but not a cell phone calculator.

Some good practice exercises are listed below.

1. Consider the situation presented in exercise 3.124. Suppose each individual in a sample of 500 randomly selected elementary school children is first classified as firstborn or not firstborn, and is subsequently classified as aggressive or not aggressive. The result of those classifications is summarized in the table given in the exercise. Now consider an experiment in which an individual is elected at random from the sample. Sketch a tree diagram for the experiment and identify the four sample points in the sample space. Assign probabilities to each sample point and respond to items a-d in the exercise. Finally determine whether or not A and B are mutually exclusive and justify your response.
2. 4.162, 4.163, 4.168 (Show how each answer is calculated.), 4.169 (Do parts a, b, c and illustrate with a shaded sketch of a normal distribution.), 4.70 (Do parts a, d, f and illustrate with a shaded sketch of a normal distribution.), 4.95, 4.97, 4.98, 4.104 (Do part b only.), 4.173, 4.175 (Illustrate with a diagram.), 4.179, 4.180 (Do parts d and e.), 4.185.
3. Suppose the random variable z has a normal distribution with $\mu = 0$ and $\sigma = 1$. Find the following probabilities:
 - a. $P(z = 1.5)$
 - b. $P(z < 1.5)$
 - c. $P(z > 1.5)$
4. Suppose the random variable z has a normal distribution with $\mu = 0$ and $\sigma = 1$. Find a value of z , say z_0 , such that
 - a. $P(z \geq z_0) = 0.5$
 - b. $P(z > z_0) = 0.16$
 - c. $P(z > z_0) = 0.66$