



# NATIONAL PARALEGAL COLLEGE

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## *Ideas in Math: MAT-201*

### Assignment #4

1. A pair of dice is rolled. Sam says there are 36 outcomes in the sample space for this procedure and Sally says there are 11 outcomes in the sample space. Explain how they could both be correct.

Ans:

2. Suppose three fair coins are tossed and the number of heads that appear is recorded. What is the probability of getting exactly two heads?

Ans:

3. We must create a license plate code that consists of two letters followed by three digits. The letters cannot repeat, but the digits may. How many such license plate codes can be formed?

Ans:

4. A pizza can be made with any of the following toppings: Cheese, pepperoni, sausage, mushrooms, anchovies, green peppers, or olives. Doubling of any topping is not allowed. What is the probability that a randomly created three-topping pizza will contain mushrooms?

Ans:

5. Suppose a game has four outcomes, A, B, C, and D. The probability of outcome A is 0.4, the probabilities of each of the other outcomes is 0.2. A player receives \$2 if outcome A occurs, \$3 if outcome B occurs, \$1 if outcome C occurs, and must *pay* \$5 if outcome D occurs. What is the mean value of one trial of this game?

Ans:

6. Suppose a trial consists of rolling two dice and reporting the smaller of the two numbers rolled? What are the possible outcomes? Are they equally likely?

Ans:

7. According to the Central Limit Theorem, how does the variance of averages over four observations compare to the variance of individual observations?

Ans: