

## Statistics and Probability

### Notes

- Review of Probability Concepts:

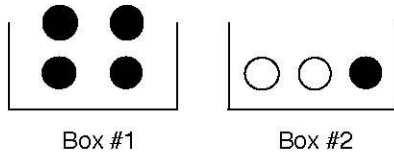
$$P(E) = \frac{\text{Number of Equally Likely Outcomes in which the Event Can Occur}}{\text{Total Number of Equally Likely Possible Outcomes}}$$

The product rule, with replacement and without replacement:

- Statistics (mean, median, mode, range):

### Discussion Questions

1. There are two boxes as shown below. A ball is drawn at random from Box #1 and placed into Box #2. Then a ball is drawn at random from Box #2. Find the probability that the ball drawn from Box #2 is black.



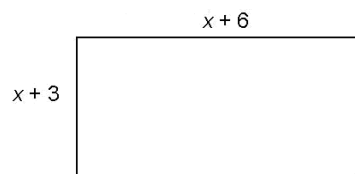
2. There are three square tiles in a bag that are identical except for color. Two are green and one is blue. A player reaches into the bag and draws two tiles at the same time. If they match, the player wins. If the tiles do not match, the player loses. What is the probability of winning twice in a row?

3. Mrs. Brown made a stem and leaf plot to show the grades on the first exam in her Spanish class. Use this information to determine the mode of the test scores for that class.

Test Scores (out of 100)

Stem	Leaf
9	2256
8	114666
7	588
6	58

4. A rectangle has side lengths of  $x + 3$  and  $x + 6$  as shown. Suppose that the value of  $x$  is chosen at random from the following set of numbers: {1, 2, 3, 4, 5}. What is the probability that the area of the rectangle is greater than 65?



5. Tennessee license plates consist of 3 letters followed by 3 digits (0 – 9), for example ABA121. How many such plates have no repeated digit and do not use the letter Z?

6. Two prime numbers are randomly selected without replacement from among the first eight prime numbers. What is the probability that their sum will be 24?

### Practice Questions

7. A bag contains 7 red marbles, 9 blue marbles and 8 green marbles.  
What is the probability of reaching into the bag (one time) and pulling out a blue one?

8. A card is chosen at random from a deck of 52 cards. It is then replaced and a second card is chosen. What is the probability of choosing a jack and an eight?

9. A drawer contains socks that are all identical except for color. The drawer contains 4 black, 12 blue, and 20 brown socks. In the dark, a person randomly selects 2 socks from the drawer. Find the probability that the two socks will match.

10. Three pairs of socks are in a basket. The socks are identical except that each pair is a different color. The babysitter, who is watching TV as he is dressing the triplets, reaches into the basket without looking and puts the socks on the children without noticing that the socks are different colors. What is the probability that each child has on a pair of socks that match?