Name_____ Date_____

Chapter 15 – Study Guide

Complete this study guide with the assistance of your notes and book.

15.1 - Outcomes and Events:

Vocabulary

Outcomes -   The _____ _____ of an experiment

Event -   A collection of 1 or more _____.

Favorable Outcomes - The outcomes of a _____ _____.

You randomly choose one of the tiles shown below. Find the favorable outcomes of the event. DO NOT GIVE THE PROBABILITY.


1)   Choosing a 4

2)   Choosing an even number

3)   Choosing a number less than 2

4)   Choosing an odd number greater than 6

5)   Choosing a number divisible by 2

6)   Choosing a number greater than 10

7)   A beverage cooler contains bottles of orange juice and apple juice. There are 44 bottles in the cooler.

   a)   You are **equally likely** to randomly choose a bottle of orange juice or a bottle of apple juice from the cooler. How many of the bottles are apple juice?

   b)   Two of the bottles of orange juice are replaced with apple juice. How many ways can you randomly choose a bottle of apple juice from the cooler?

15.2 - Outcomes and Events:

8) Complete the formula for probability: $P(event)$ = ──────────────────────────────

9) What words/phrase would describe the likelihood of the following in the probability scale:

0	¼	½	¾	1
0	0.25	0.5	0.75	1
0 %	25 %	50 %	75 %	100 %

_____ _____ _____ _____ _____
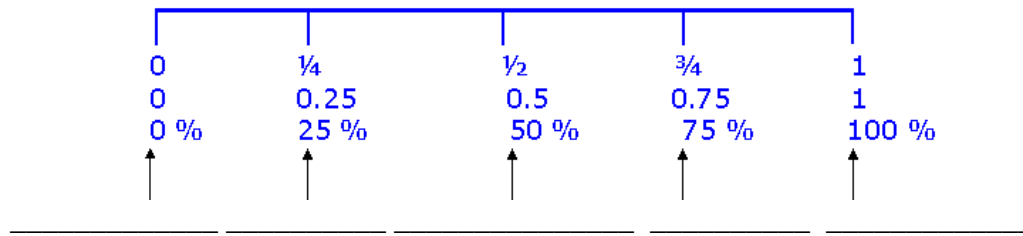
Describe the likelihood of the event given its probability.

10) The probability that it will snow today is zero.   _____

11) You make a free throw 70% of the time.   _____

12) Your band marches in $\frac{1}{6}$ of the parades.   _____

You randomly choose one song from a collection of 4 country songs, 2 jazz songs, 3 rock songs, and 1 pop song. Find the probability of the event.

13) Choosing a jazz song

14) Choosing a pop song

15) *Not* choosing a country song

16) Choosing a blues song

17) In a classroom, the probability that the teacher chooses a boy from 20 students is 0.45.

   a)   How many students are *not* boys?

   b)   Describe the likelihood of *not* choosing a boy.

15.3 - Experimental and Theoretical Probability:

18) Complete the formula: *Relative Frequency* $=$ _____

19) Complete the formula: *Experimental Probability* = _____

20) You have four sticks. Two sticks have one blue side and one pink side. One stick has 2 blue sides. One stick has 2 pink sides. You throw the sticks 20 times and record the results. Use the table to find the experimental probability of the event.

Outcome	Frequency
3 blue, 1 pink	7
2 blue, 2 pink	9
1 blue, 3 pink	4

   a) Tossing 1 pink and 3 blue

   b) Tossing the same number of blue and pink

   c) *Not* tossing 3 pink

   d) Tossing at most 2 blue

21) You flip 3 coins 50 times, and flipping 3 tails occurs 6 times.

   a) What words above refer to the *total number of trials*?

   b) What words above refer to the *number of times the event occurs*?

   c) What words above refer to the *event*?

   d) What is the experimental probability that you flip 3 tails?

   e) How many times would you expect to flip 3 tails out of 200 trials of flipping coins?

15.4 - Compound Events:

Vocabulary

Sample Space -   The set of all possible _____ of 1 or more _____.

22) What are two ways that you possibly display a sample space?

Use a tree diagram to find the sample space and the total number of possible outcomes.

23)

Pet	
Animal	Hamster, Guinea Pig, Snake
Name	Lucky, Shadow, Smokey, Max

24)

Ice Cream	
Cone	Waffle, Sugar
Flavor	Chocolate, Vanilla, Strawberry

Use the Fundamental Counting Principle to find the total number of possible outcomes. SHOW WORK.

25)

Pizza	
Size	Small, Medium, Large
Crust	Thin, Thick, Regular

26)

Car	
Transmission	Automatic, Manual
Doors	2-door, 4-door
Color	Red, Blue, Black, White

15.5 - Independent and Dependent Events:

27) You throw the bowling ball at the pins. You have two throws to knock down ten pins.

      First Throw: You knock down 6 pins.   Second Throw: You knock down 1 pin.

      Are these events independent or dependent events? Explain?

28) You roll a number cube twice.

      First Roll: You roll an odd number.   Second Roll: You roll a number less than 2.

      Are these events independent or dependent events? Explain?

You randomly choose one of the tiles. Without replacing the first tile, you choose a second tile. Find the probability of the compound event.

29) Choosing a 6 and then a prime number

30) Choosing two odd numbers

31) Choosing a 6 and then a number greater than 4

15.6 - Samples and Populations

Identify which one among the pair of groups is the population and which one is the sample.

32) All students in a school

30 students in the school

33) 75 strawberries in the field

All the strawberries in the field

34) You want to know the number of students in your school who read some of the newspaper at least once a week. You survey 30 random students that you meet in the hallway between classes.

   a) What is the population of your survey?

   b) What is the sample of your survey?

   c) Is the sample biased or unbiased? Explain.

For each problem, which sample is better for making a prediction? Explain.

35)
Predict the number of residents in St. Lucie County who own a home.	
Sample A	A random sample of 100 residents in the county
Sample B	A random sample of 100 residents in the city of Fort Pierce

36)
| Predict the number of people at a beach who are wearing sunscreen.	
Sample A	A random sample of 50 people at the beach
Sample B	A random sample of 5 people at the beach

Determine whether you would survey the population or a sample. Explain.

37) You want to know the average weight of the members of your family.

38) You want to know the number of grocery stores in Florida that carry your favorite cereal.

39) The box-and-whisker plot represents the numbers of cocoons in each butterfly tent.
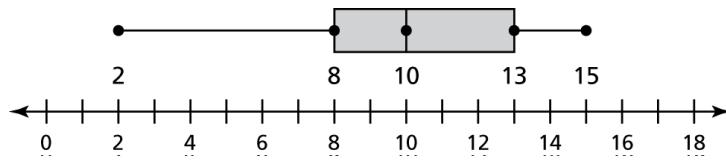
a) What percent of the butterfly tents contain at most 10 cocoons?

b) Are the data more spread out below the first quartile or above the third quartile? Explain.

c) Find and interpret the interquartile range of the data.

d) What are the most appropriate measures to describe the center and variation of the distribution?