Unit 9 Review Sheet   Name: _____

1. A die is rolled 120 times. The results of the experiment are shown on the table below.

   a. What is the theoretical probability of rolling a 4? _____

   b. What is the experimental probability of rolling a 4? _____

Rolled	1	2	3	4	5	6
# of times	16	10	15	38	17	24

   c. Theoretically, if you roll a die 120 times how many 4's should appear? _____

   d. How does the theoretical probability compare to the experimental probability?

2. You spin a spinner with equal-sized sectors numbered 1-10.   Find each probability.

   a. P(number less than 5 or an odd number) _____

   b. P(number less than 5 and an odd number = _____

   c. P(even)^c = _____

3. Goodberry's surveyed customers about their favorite flavor of custard. Customers could choose either mint chocolate chip or salted caramel. The results of the survey are below.

   - 75 customers liked mint chocolate chip
   - 80 customers liked salted caramel
   - 23 customers liked both flavors
   - 41 customers did not like either

   a. Create a Venn diagram to represent the Goodberry's survey.

   b. How many people were surveyed? _____

   c. How many people chose salted caramel <u>only</u>? _____

   d. What is the probability of $(A \cup B)$? _____

   e. What is the probability of $(A \cap B)$? _____

4. One snack size bag of Skittles contains 4 green, 4 purple, 3 orange, 2 yellow, and 3 red skittles. You randomly pick one skittle from the bag and eat it and then pick another to eat. What is the probability that you pick a red Skittle and then a purple Skittle?

5. In the AFHS band, 24 of the 62 girls are freshmen and 18 of the 54 boys are freshmen.
   What is the probability that either a boy **or** a freshman would be randomly selected to play a solo?

6. You flip a fair coin three times.

   a. Draw a tree diagram to represent the possible outcomes.

   b. List the sample space.

   c. What is the probability that the coin lands on at least two tails? _____

7. The probability of a pop quiz tomorrow is 25%. The probability that you will study your notes tonight is 50%. If these events are independent, what is the probability of having a pop quiz tomorrow given you do not study your notes tonight?

8. A survey asked 400 Junior and Senior high school students, "Would you prefer to work a summer job as a lifeguard at a pool or a ride attendant at Carowinds?" The results of the survey are shown in the relative frequency table below.

	Lifeguard	Ride Attendant	Total
Female	0.39	0.13	0.52
Male	0.15	0.33	0.48
Total	0.54	0.46	1.00

   a. What is the probability that a student would prefer to work as a lifeguard? _____

   b. What is the probability that a student is female and would choose to work as a ride attendant? _____

   c. What is the probability that a student is male or would choose to work as a lifeguard? _____

   d. What is the probability that a male student would choose to work as a ride attendant? _____

   e. How many females took the survey? _____

   f. Are wanting to be a lifeguard and being female independent? Justify your answer.

9. If you randomly spin the spinner below, what is the probability that it will land on a factor of 4, **given** that the outcome is an even number?

10. In a certain group of 200 people at a retirement home, 75% take Vitamin C on a daily basis. 55% take Vitamin E on a daily basis. 40% take both Vitamins C and E on a daily basis. If a person is selected at random, what is the probability that the person takes Vitamin E given that the person takes Vitamin C?

11. A combination class of Kindergarteners and 1st graders were asked which circus career they would choose. The frequency table below shows the results.

|	Clown	Acrobat	Elephant Tamer	Total
Kindergarten	3		8	13
1ˢᵗ Grade		4	1	
Total	5			

If one student is randomly selected, find each of the following probabilities:

a. P(clown) _____

b. P(1ˢᵗ Grader) _____

c. P(Kindergartener ∩ Elephant Tamer) _____

d. P(Acrobat ∪ 1ˢᵗ Grader) _____

e. P(Clown|Kindergartener) _____

f. P(1ˢᵗ grader|Not Acrobat) _____

12. The Venn diagram below shows data collected about 90 student athletes at a local high school.

Event A: plays basketball
B: is at least 6 feet tall
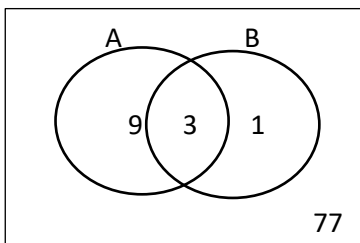
a. Create a 2-way frequency table to organize the data

b. What is $P(A \cup B)$? _____

c. What is $P(A|B)$? _____

d. Are playing basketball and being at least 6 feet tall independent events? Justify your answer.

13. The tree diagram below shows data collected from last week about the weather and student tardies. Use the tree diagram to answer each of the following questions.
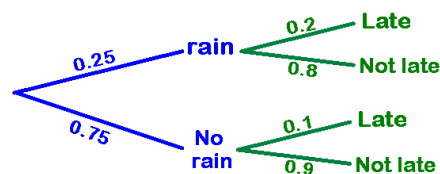
a. What is the probability that it was not raining and a randomly selected student was not late?

b. What is the probability that a randomly selected student was late given it was raining? _____

c. Are tardiness and the weather independent events? Justify your answer.

14. Your sock drawer has 9 black socks and 4 white socks. Without looking you grab two socks, one right after the other. What is the probability that you pull out a matching pair of black socks?

15. Label the event as independent or dependent

    a. Courtney has 7 blue pens, 3 black pens, and 2 red pens in her book bag. She selects 3 pens at random without replacing.

    b. A nickel and a penny are flipped

    c. A month is selected at random. A number of the day of the month between 1 and 28 is selected at random

    d. Throwing a 6 with one die and a 4 with another

    e. Picking a 7 from a deck of cards, keeping it, and picking a jack

    f. Picking a red M&M from a bag of candy, eating it, and then picking a green M&M from the same bag

    g. Picking two black marbles from a bag of black and white marbles after replacing the first one