Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Using Venn Diagrams**

**If the Venn diagram below shows the number of people in a fine arts club who are in band (B) and choir (C), make the following determinates:**

1. How many people are in the club?

**B**

**C**

**24**

**2**

**16**

**8**

1. Find P(B)
2. Find P(B ∩ C)
3. Find P(B ∪ C)
4. Find P(B)’

**A guidance counselor is planning schedules for 30 students. 16 want to take Spanish and 11 want to take Latin. 5 Say they want to take both. Display this information on the Venn diagram below.**

**Spanish**

**Latin**

1. Find P(S ∩ L)
2. Find P(L)
3. What is the probability that a student studies at least one subject? **P(S ∪ L)**
4. What is the probability that a student studies exactly one subject?
5. What is the probability that a student studies neither subject? **P(S ∪ L)’**
6. What is the probability that a student studied Spanish if it is known that the student studies Latin? *Hint: your denominator only represents those who study Latin. Only look in that circle to search for your numerator.*

**Mr. Leary’s Class: Use the Venn diagram showing the number of kids owning bicycles (A) and skateboards (B) to find the following probabilities.**

**Bicycle**

**Skateboard**

**Ryan**

**Sarah**

**Mariko**

**Nina**

**Dion**

**Joe**

**Mike**

**Linda**

**Rose**

**Brett**

**Juan**

**Tobi**

**Amy**

**Gabe**

**Abi**

1. Find P(A ∩ B)

Fill in the blank for the **description** of what this means: It’s the probability of owning \_\_\_\_\_\_\_ things.

1. Find P(A ∪ B)

Fill in the blank for the **description** of what this means: It’s the probability of owning \_\_\_ \_\_\_\_\_\_ one of the things.

1. Find P(A ∪ B)’

Fill in the blank for the **description** of what this means: It’s the probability of owning \_\_\_\_\_\_\_ thing.

**The Venn diagram below shows the results of a survey done by a veterinarian about the types of pets owned by 26 clients. The survey was only related to dogs (D), cats (C), and fish (F).**

**Dogs**

**Cats**

**7**

**Fish**

**4**

**5**

**0**

**1**

**3**

***k***

**5**

1. What is the value of ***k***?
2. How did you determine the value?

**If a randomly selected member is asked their preference, what is the probability that the member has:**

1. Only dogs?
2. Dogs and cats? **P(D ∩ C)**
3. None of these animals? **P(D ∪ C ∪ F)’**
4. At least one of these pets? **P(D ∪ C ∪ F)**
5. All of the pets? **P(D ∩ C ∩ F)**
6. Fish and dogs, but not cats?
7. Fish or dogs? **P(F ∪ D)**