

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

## Day 2 – Set Notation and 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:

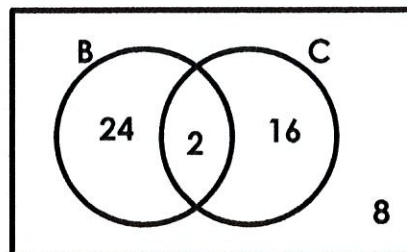
50 1. How many people are in the club?

13/25 2. Find  $P(B)$   $26/50 = 13/25$

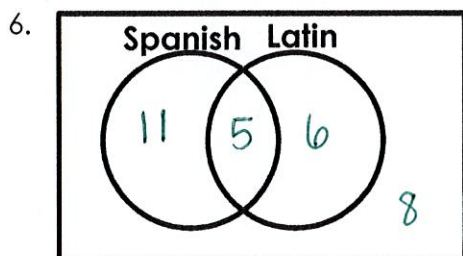
1/25 3. Find  $P(B \cap C)$   $2/50 = 1/25$

21/25 4. Find  $P(B \cup C)$   $42/50 = 21/25$

12/25 5. Find  $P(B)'$   $24/50 = 12/25$



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.



1/6 7. Find  $P(S \cap L)$   $5/30 = 1/6$

11/30 8. Find  $P(L)$

11/15 9. What is the probability that a student studies at least one subject?  $P(S \cup L)$   $22/30 = 11/15$

17/30 10. What is the probability that a student studies exactly one subject?

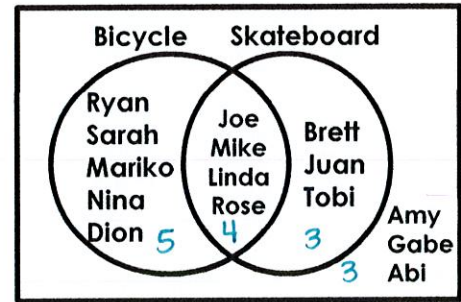
4/15 11. What is the probability that a student studies neither subject?  $P(S \cup L)'$   $8/30 = 4/15$

5/11 12. 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.

4/15 13. Find  $P(A \cap B)$

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



4/5 14. Find  $P(A \cup B)$   $12/15 = 4/5$

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

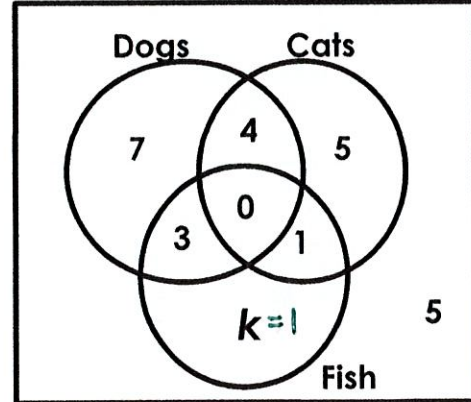
1/5 15. Find  $P(A \cup B)'$   $3/15 = 1/5$

Fill in the blank for the **description** of what this means: It’s the probability of owning neither 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).

1 16. What is the value of  $k$ ?

17. How did you determine the value?  
 $7 + 4 + 5 + 3 + 0 + 1 + k = 26$   
 $25 + k = 26$   $k = 1$



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

7/26 18. Only dogs?

2/13 19. Dogs and cats?  $P(D \cap C) = 4/26 = 2/13$

5/26 20. None of these animals?  $P(D \cup C \cup F)'$

21/26 21. At least one of these pets?  $P(D \cup C \cup F)$

0/26 22. All of the pets?  $P(D \cap C \cap F)$

3/26 23. Fish and dogs, but not cats?

8/13 24. Fish or dogs?  $P(F \cup D) = 16/26 = 8/13$