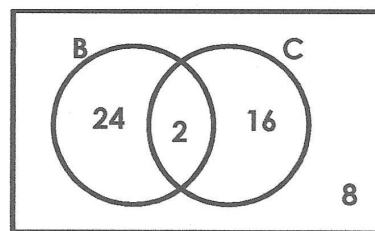


Name: _____ Date: Key

Using Venn Diagrams

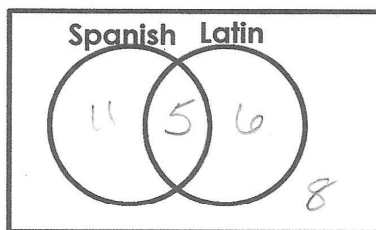
If the Venn diagram below shows the number of people in a fine arts club who are in band (B) and choir (C), make the following determinates:

- 50 1. How many people are in the club?
24 + 2 + 16 + 8 = 50
- $\frac{26}{50} = \frac{13}{25}$ 2. Find P(B)
- $\frac{2}{50} = \frac{1}{25}$ 3. Find P(B ∩ C)
- $\frac{42}{50} = \frac{21}{25}$ 4. Find P(B ∪ C) *24 + 2 + 16 = 42*
- $\frac{24}{50} = \frac{12}{25}$ 5. Find P(B)' ← Complement (Not)
50 - 26 = 24



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.

6. $16 - 5 = 11$
 $11 - 5 = 6$
 $11 + 5 + 6 = 22$
 $30 - 22 = 8$

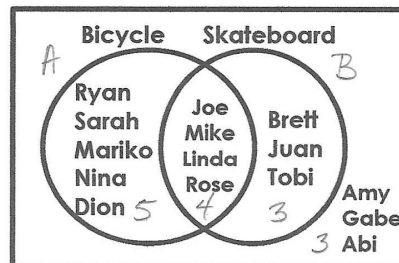


- $\frac{5}{30} = \frac{1}{6}$ 7. Find P(S ∩ L) ← intersect (overlap only)
- $\frac{11}{30}$ 8. Find P(L)
- $\frac{22}{30} = \frac{11}{15}$ 9. What is the probability that a student studies at least one subject? P(S ∪ L) ← union (all)
- $\frac{17}{30}$ 10. What is the probability that a student studies exactly one subject? *11 + 6 = 17*
- $\frac{8}{30} = \frac{4}{15}$ 11. What is the probability that a student studies neither subject? P(S ∪ L)'
- $\frac{5}{11}$ 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. *11 study latin*

Mr. Leary's Class: Use the Venn diagram showing the number of kids owning bicycles (A) and skateboards (B) to find the following probabilities. *Total = 5 + 4 + 3 + 3 = 15*

$\frac{4}{15}$ 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.



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

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

$\frac{3}{15} = \frac{1}{5}$ 15. Find $P(A \cup B)'$ *← complement*

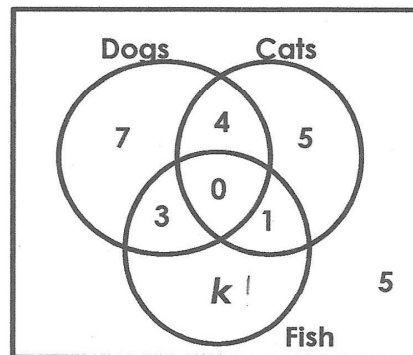
Fill in the blank for the **description** of what this means: It's the probability of owning neither thing.

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).

$\frac{1}{26}$ 16. What is the value of k ? *→ total*

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

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



$\frac{7}{26}$ 18. Only dogs?

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

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

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

$\frac{0}{26} = 0$ 22. All of the pets? $P(D \cap C \cap F)$

$\frac{3}{26}$ 23. Fish and dogs, but not cats?

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