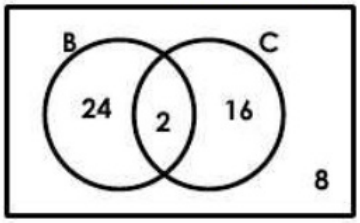
Unit 5 – Probability 5.1 – Classwork

Name: Key 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:

24+2+16+8 = 50 people



50 1. How many people are in the club?

13/25 2. Find P(B) 24+2 = 26/50 ÷2 =

1/25 3. Find P(B ∩ C) → intersection 2/50 =

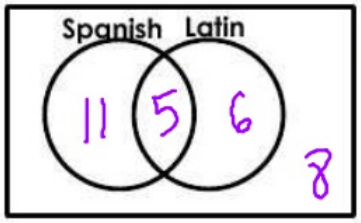
21/25 4. Find P(B ∪ C) → union (add) 24+2+16 = 42/50 ÷2 = 21/25

12/25 5. Find P(B)' 16+8 = 24/50 ÷2 = 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.

S: 16 − 5 = 11 L: 11 − 5 = 6 Total: 11 + 5 + 6 = 22 30 − 22 = 8 left over

6.



1/6 7. Find P(S ∩ L) → intersection 5/30 ÷5 = 1/6

11/30 8. Find P(L) 5+6

11/15 9. What is the probability that a student studies at least one subject? P(S ∪ L) union (add) 11+5+6 = 22/30 ÷2 = 11/15

17/30 10. What is the probability that a student studies exactly one subject? 11+6 = 17

4/15 11. What is the probability that a student studies neither subject? P(S ∪ L)' 8/30 ÷2 = 4/15

1/6 12. What is the probability that a student studied Spanish if it is known that the student studies Latin? 5/30 ÷5 = 1/6

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 = 15

4/15 13. Find P(A ∩ B) and describe what this probability represents? Students who own a bike & a skateboard.

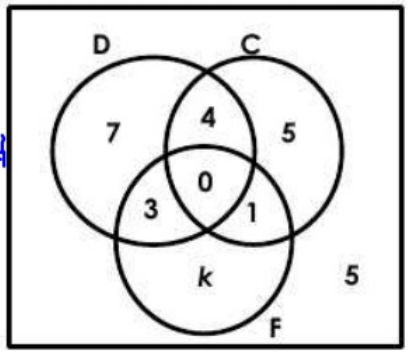
4/5 14. Find P(A ∪ B) and describe what this probability represents? Kids who own a bike plus kids who own a skateboard.

12÷3 / 15÷3

1/5 15. Find P(A ∪ B)' and describe what this probability represents? Kids who do not own a skateboard or a bike.

3/15 ÷3 = 1/5

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).



k = 1 16. What is the value of k? 7+4+5+3+1+5 = 25

k = 1 17. How did you determine the value? 26 − 25 = 1

The total must add to 26. I subtracted the present values from 26.

If a randomly selected member is asked their preference, what is the <u>probability</u> that the member has:

7/26 18. Only dogs?

2/13 19. Dogs and cats? 4+0 = 4/26 ÷2 = 2/13

5/26 20. None of these animals?

21/26 21. At least one of these pets? 7+3+4+0+5+1+1 = 21

0/26 = 0 22. All of the pets?

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

8/13 24. Fish or dogs? 7+4+3+0+1+1 = 16 16/26 ÷2 = 8/13