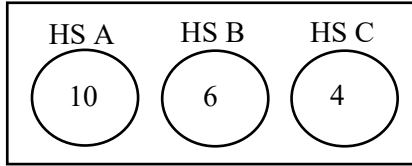


Math 2 Unit 14 Worksheet 2
Probability and Mutually Exclusive Events

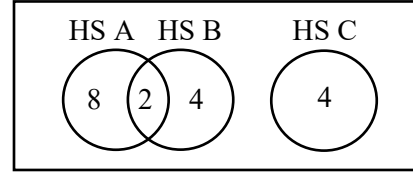
Name: _____
 Date: _____ Per: _____

1. Elena's competition soccer team has girls from 3 different high schools. Ten girls go to high school A, six girls go to high school B, and four girls go to high school C.

Stephanie says this Venn diagram can be used to display the information about Elena's team:



Nick said he thinks it is possible that the Venn diagram could look like this:



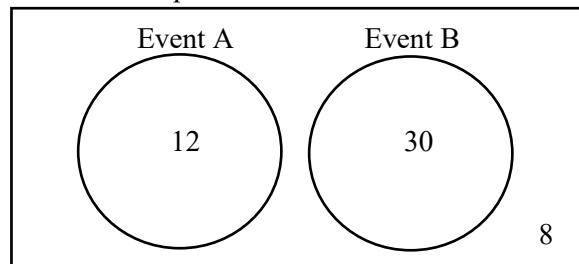
- a) Do you agree with Nick or Stephanie? Explain your reasoning.
- b) What would it mean if Nick's was correct?

Mutually Exclusive events, also called **Disjoint** events, can never both happen at the same time. When one occurs, it means the other cannot possibly occur.

[2-5] Decide if each of the pairs of events are mutually exclusive. Circle yes or no.

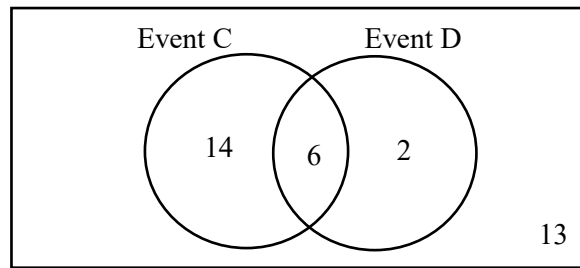
	Mutually Exclusive	
2. Event A: wore blue yesterday Event B: wore yellow yesterday	yes	no
3. Event A: born in Fresno, CA Event B: born in Atlanta, GA	yes	no
4. Event A: loves pizza Event B: hates chocolate	yes	no
5. Event A: junior in high school Event B: freshman in high school	yes	no

[6-9] Use the Venn diagram below to answer the questions.



6. Are Event A and Event B mutually exclusive? _____
7. $P(\text{choosing a person from Event B}) =$ _____
8. $P(\text{choosing a person from Event A or Event B}) =$ _____
9. $P(\text{choosing a person from Event A and Event B}) =$ _____

[10-14] Use the Venn diagram below to answer the questions.



10. Are Event C and Event D mutually exclusive? _____
11. $P(\text{choosing a person from Event C}) =$ _____
12. $P(\text{choosing a person from Event C or Event D}) =$ _____
13. $P(\text{choosing a person from Event C and Event D}) =$ _____
14. $P(\text{choosing a person not from Event C or Event D}) =$ _____

Did you know?...

Probabilities can be expressed as:

Fractions
 $P(A) = \frac{1}{4}$

Decimals
 $P(A) = 0.25$

Percents
 $P(A) = 25\%$

[15-19] A and B are mutually exclusive events.

$P(A) = 0.55$ and $P(B) = 0.25$

15. Draw a Venn diagram to represent the situation. Your decimals should add up to 1.00 (100%)

16. $P(A \text{ or } B) =$ _____

17. $P(\text{not } A) =$ _____

18. $P(\text{not } A \text{ or } B) =$ _____

19. $P(A \text{ and } B) =$ _____

20. In your own words, describe how the events of drawing a diamond or drawing a club from a standard deck of playing cards are mutually exclusive.

[21-23] A pair of dice are rolled; one is red, and one is white. The sum is recorded.

21. What is the sample space (possible outcomes) for this sum?

The possible outcomes for rolling these two dice are shown in the table below. Answer the following probability questions:

		White					
		1	2	3	4	5	6
Red	1	1,1	1,2	1,3	1,4	1,5	1,6
	2	2,1	2,2	2,3	2,4	2,5	2,6
	3	3,1	3,2	3,3	3,4	3,5	3,6
	4	4,1	4,2	4,3	4,4	4,5	4,6
	5	5,1	5,2	5,3	5,4	5,5	5,6
	6	6,1	6,2	6,3	6,4	6,5	6,6

- a) $P(\text{roll sum of } 7) =$ _____
- b) $P(\text{roll sum of } 3 \text{ or } 11) =$ _____
- c) $P(\text{rolling doubles}) =$ _____
- d) $P(\text{roll an even sum}) =$ _____

22. If event A is rolling doubles and event B is a sum of 7, are the 2 events mutually exclusive? Explain your reasoning.

23. If event A is rolling doubles, create an event B so that event A and B are not mutually exclusive. Explain your reasoning.