SM 2

Name:_____ Period:_____

Unit 8 Review: Statistics and Probability

Use the following table to answer questions 1-5.
A few classes are deciding on the name of their classroom pet. The students have been asked to vote on the top two choices: Fluffy or Spike. The results are summarized in the table below.

	Fluffy	**Spike**	**Total**
Female	20	10	30
Male	5	15	20
Total	25	25	50

1. Give the marginal distribution of name choice.

2. Give the conditional distribution of name choice for the females.

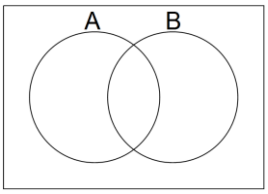
3. Give the conditional distribution of name choice for the males.

4. Draw a side-by-side bar graph comparing the conditional distributions of name choice for males and females.

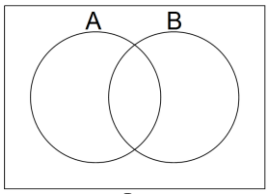
5. Write a few sentences comparing the conditional distributions of name choice for males and females.

Shade the indicated regions on the Venn Diagram.

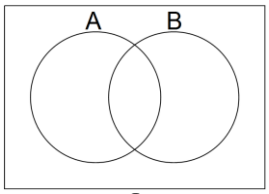
6. A



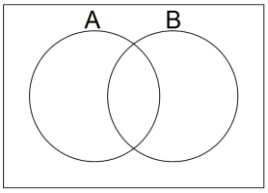
7. $A \cap B$



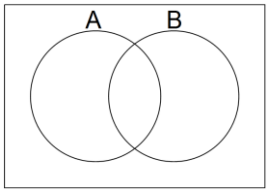
8. $A \cup B$



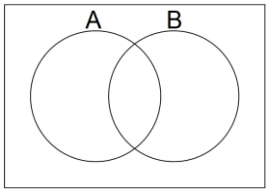
9. A^C



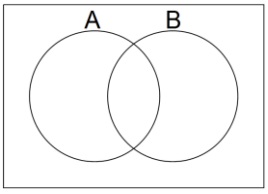
10. $(A \cap B)^C$



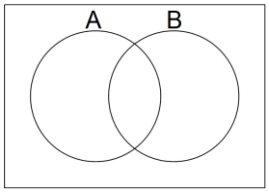
11. $(A \cup B)^C$



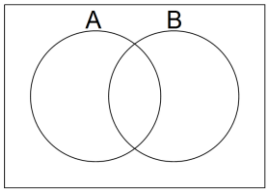
12. $A - B$



13. $A \cup B^C$

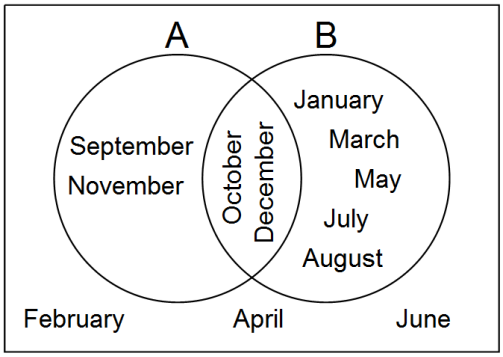


14. $B \cap A^C$



15. Use the Venn Diagram at the right to answer the following questions:

a. What is the sample space?



A = Months that end in "ber"
B = Months with 31 days

b. List the outcomes in A.

c. List the outcomes in B.

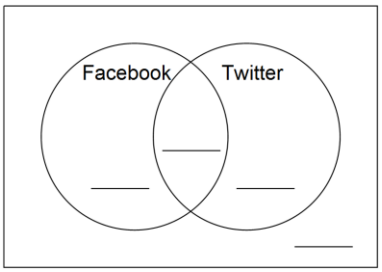
d. List the outcomes in A^C.

e. List the outcomes in $A \cup B$.

f. List the outcomes in $A \cap B$.

g. List the outcomes in $(A \cup B)^C$.

16. In a group of 100 students, 30 have Facebook accounts, 60 have Twitter accounts, and 20 have both Facebook and Twitter accounts.
    a. Fill in the Venn Diagram.



    b. What is the probability that a student chosen at random has a Facebook or Twitter account?

17. The table below shows the results of a survey that asked students whether they do chores and whether they receive an allowance. Fill in the marginal totals, then answer the questions. **Write each probability in symbols, then find the probability. Write the answers as simplified fractions.**

	Chores	**No Chores**	**Total**
Allowance	65	15	
No Allowance	20	30	
Total			

a. What is the probability that a student from the sample receives an allowance?

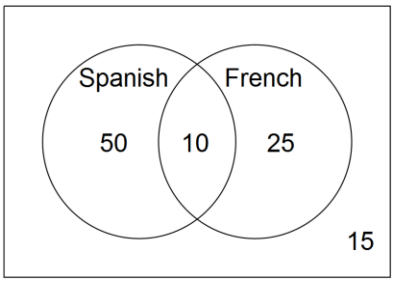
b. What is the probability that a student from the sample has chores *and* does not receive an allowance?

c. What is the probability that a student from the sample has no chores *or* receives an allowance?

d. What is the probability that a student who has chores receives an allowance?

e. What is the probability that a student has no chores *given that* the student does not receive an allowance?

18. The Venn Diagram below deals shows how many members of a foreign-language club speak Spanish and/or French. **Express all probabilities as percentages.**



a. $P(\text{Spanish})$

b. $P(\text{French})$

c. $P(\text{Spanish} \cap \text{French})$

d. $P(\text{Spanish} \cup \text{French})$

e. $P(\text{Spanish} \mid \text{French})$

f. $P(\text{French} \mid \text{Spanish})$

g. $P(\text{not Spanish} \mid \text{not French})$

h. $P(\text{not French} \mid \text{Spanish})$

i. $P(\text{French} \mid \text{not Spanish})$

Vocabulary

Directions: Next to each term, write the letter corresponding to the correct definition.

_____1. Sample Space		A. The set of all elements that are in *either A or B or both.*
_____2. Union		B. The fraction or percent of a group that fall in a category.
_____3. Categorical Variable		C. The objects described by a set of data. They may be people, animals, or things.
_____4. Event		D. Gives the relative frequencies of all the individuals *in the entire sample* who fall into each category.
_____5. Intersection		E. A characteristic of an individual that places the individual into one or more groups.
_____6. Relative Frequency		F. *One outcome or a set of outcomes* of a chance process.
_____7. Marginal Distribution		G. The set of all elements that are in *both A and B.*
_____8. Complement		H. All of the elements that are *not in a set.*
_____9. Individuals		I. Gives the relative frequencies of all the individuals in *just one subgroup* who fall into each category.
_____10. Conditional Distribution		J. The set of *all possible outcomes* of a chance process.