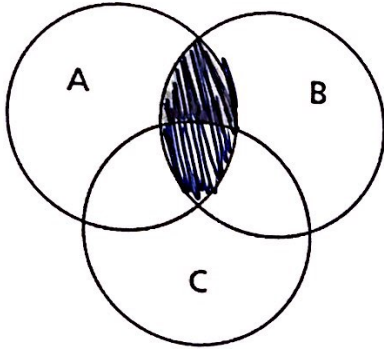
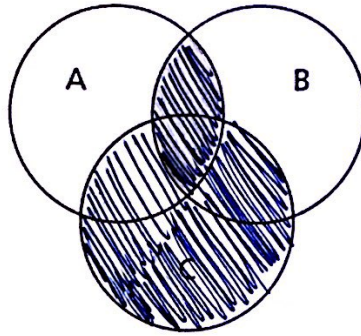


PART I: In the following Venn diagrams shade in the indicated region. If you need to shade multiple items then use a hi-liter to indicate your final solution.

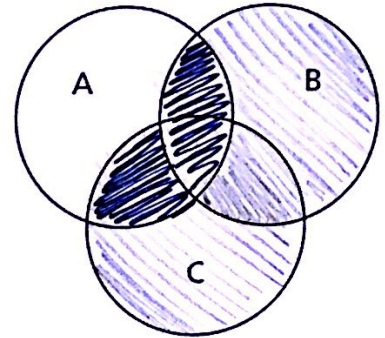
1. $A \cap B$



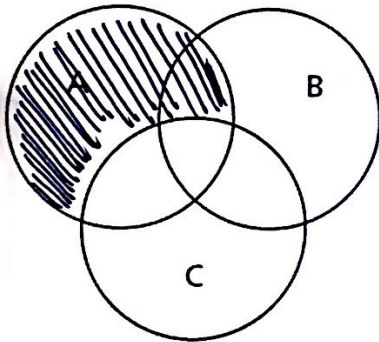
2. $(A \cap B) \cup C$



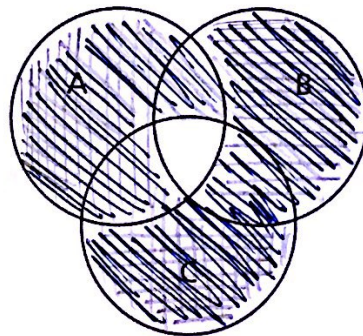
3. $A \cap (B \cup C)$



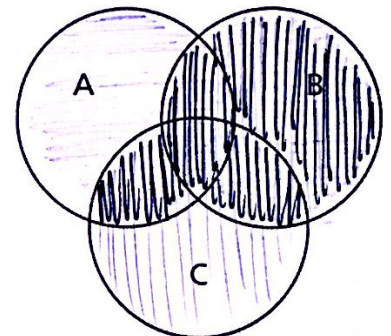
4. $A \cap C'$



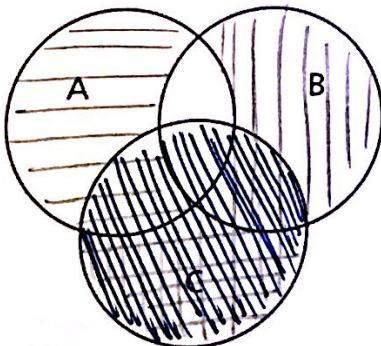
5. $A' \cup B' \cup C'$



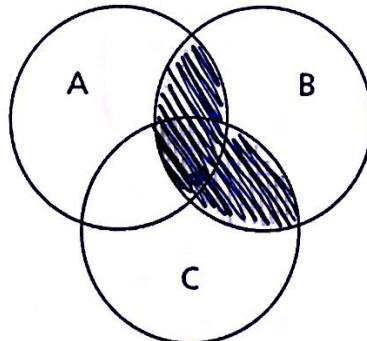
6. $(A \cup B) \cap (B \cup C)$



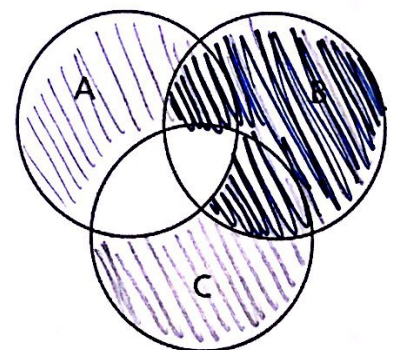
7. $(A' \cap B') \cup C$



8. $(A \cap B) \cup (B \cap C)$



9. $B \cap (A \cup C)'$

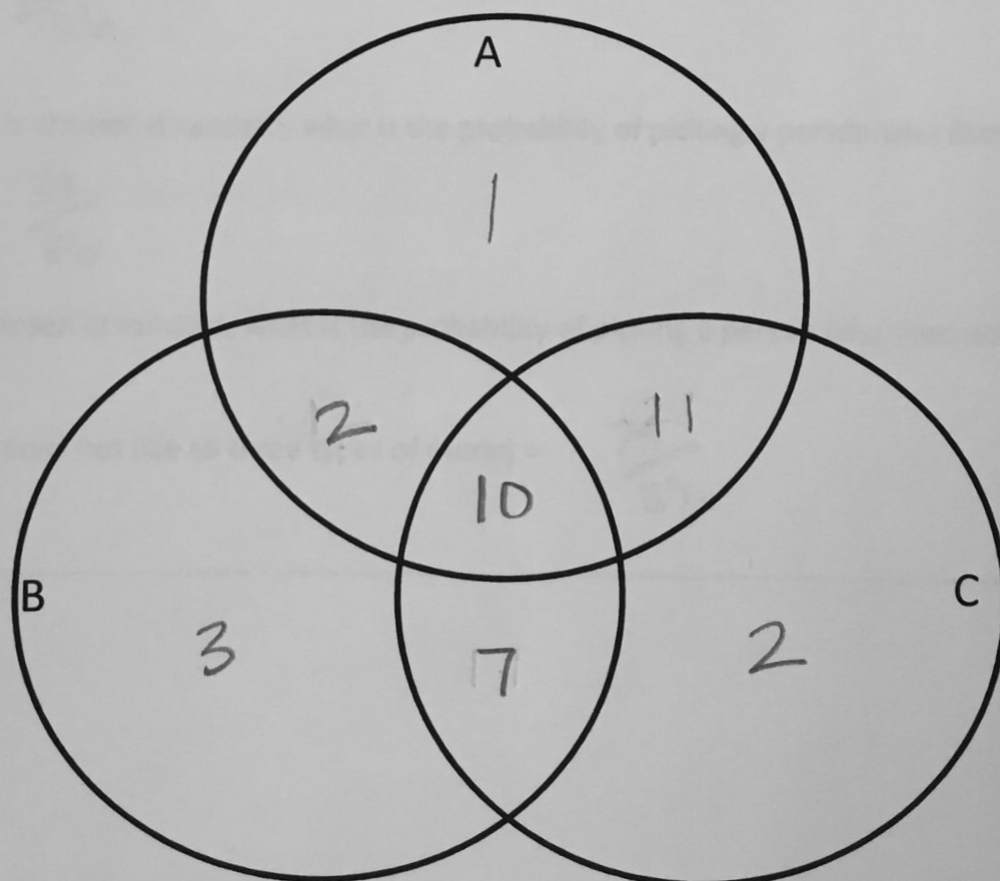


Part II:

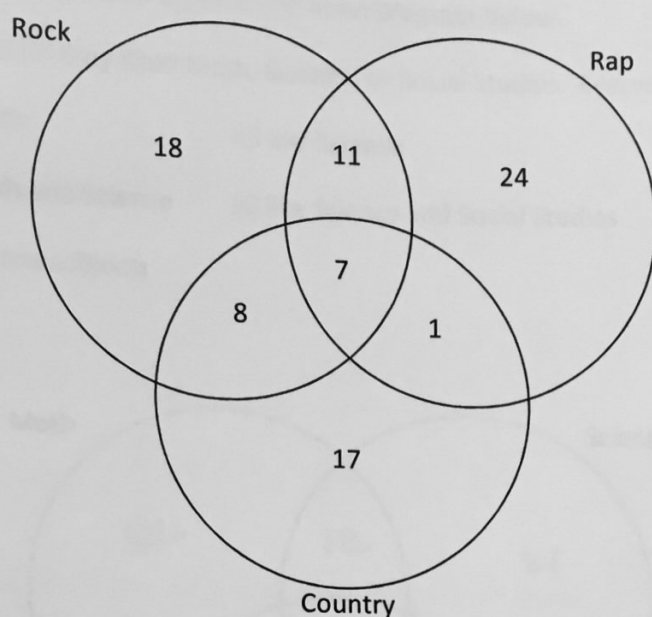
1) The 36 students in Algebra 2 were assigned three challenging problems, A, B and C. A poll of the classes, week later, showed that each student had solved at least one of the problems. It also showed this additional information.

- 10 students had solved all three problems
- 12 students had solved A and B
- 17 students had solved B and C
- 21 students had solved A and C
- 24 students had solved A
- 22 students had solved B
- 30 students had solved C

- a. Fill in the Venn Diagram
- b. What is the probability a student solved problem C only? $\frac{2}{36}$
- c. What is the probability a student solved problem A only? $\frac{1}{36}$
- d. What is the probability a student solved exactly one problem? $\frac{6}{36}$
- e. What is the probability a student solved exactly two problems? $\frac{20}{36}$



2. Use the Venn Diagram below to answer question.



A. How many total people are represented in the diagram? 86

B. How many people like country? 33

C. If one person is chosen at random, what is the probability that that person will like rap music?

$$P(\text{rap}) = \frac{43}{86}$$

D. If one person is chosen at random, what is the probability of picking a person who likes country?

$$P(\text{country}) = \frac{33}{86}$$

E. If one person is chosen at random, what is the probability of picking a person who does not like all three types of music?

$$P(\text{person who does not like all three types of music}) = \frac{79}{86}$$

3. Use the following information to fill in the Venn Diagram below.

100 people were asked if they liked Math, Science, or Social Studies. Everyone answered that they liked at least one.

56 like Math

43 like Science

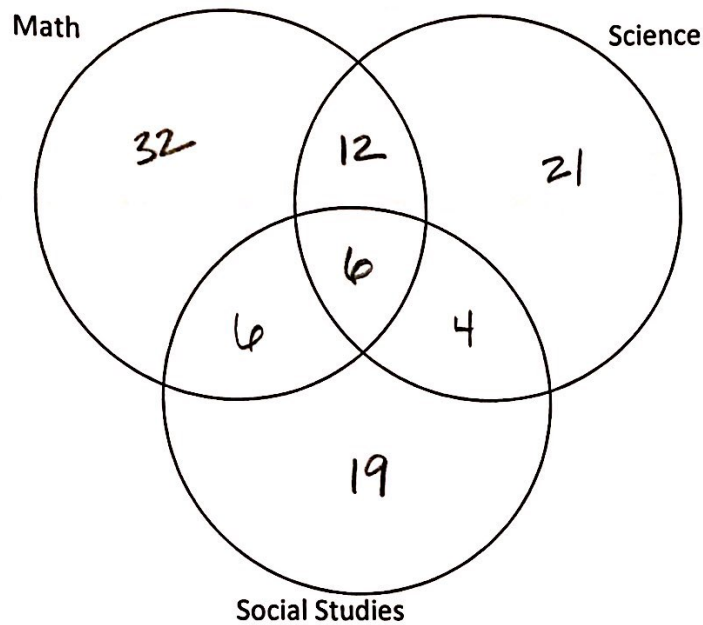
35 like Social Studies

18 like Math and Science

10 like Science and Social Studies

12 like Math and Social Studies

6 like all three subjects



A. How many people like Math only? 32

B. How many people like Science only? 21

C. How many people like Social Studies only? 19

4. In a class of 30 students, 19 study physics, 17 study Chemistry, and 15 study both of these subjects. Display this information on a Venn diagram and hence determine the probability that a random selected class member studies:

- A. both subjects 15/30
- B. Physics, but not Chemistry 4/30
- C. Exactly one of the subjects 6/30
- D. either subject 6/30
- E. Chemistry if it is known that the student studies Physics 15/19

Venn Diagram

