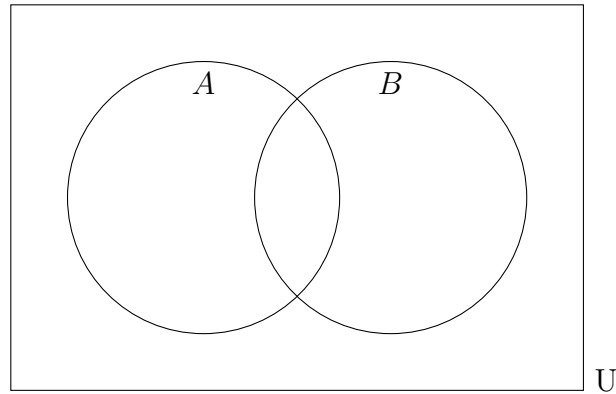


**13.5 Classwork: Sets and Venn diagrams**

1. Write each letter in the appropriate location in the Venn diagram.

$$A = \{a, b, c, d, e\} \quad B = \{a, e, i, o, u\}$$



(a) What is  $A \cup B$ ?

(b) What is  $A \cap B$ ?

2. Given the universal set  $U$  is the set of positive integers less than 13. Subsets:

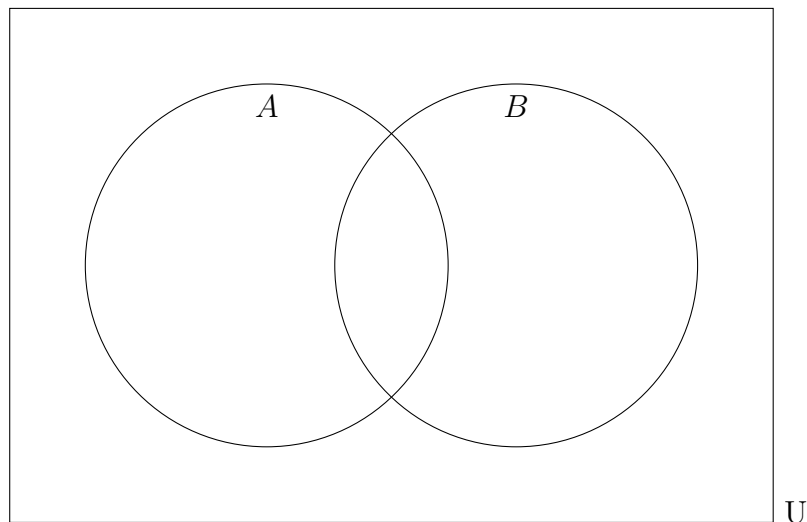
$$A = \{\text{integers that are multiples of 3}\} \quad B = \{\text{prime numbers}\}$$

*(Prime numbers have only themselves and one as factors. One is not prime.)*

(a) List the members of  $A$

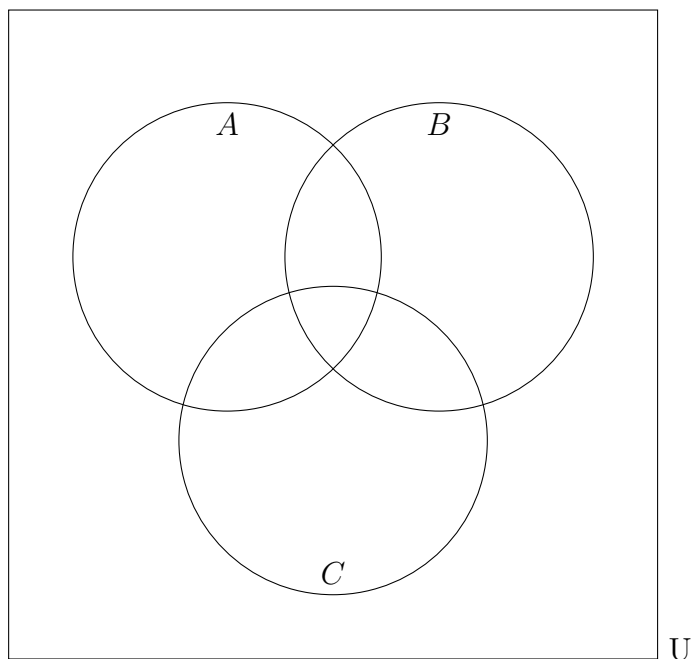
(b) List the members of  $B$

- (c) Place the elements of  $A$  and  $B$  in the appropriate regions in the Venn diagram.



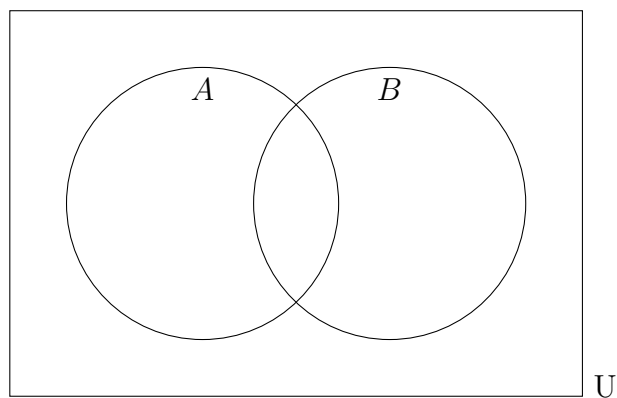
(d) List the set  $A \cap B$

3. Complete the Venn diagram with the colors of the flags of America ( $A$ ), Italy ( $B$ ), and China ( $C$ ).



4. Suppose there are 19 species of fruit-eating monkeys in the western hemisphere. Their diets are as follows:
- 16 species of monkeys eat bananas
  - 12 species eat apples
  - 11 eat both apples and bananas

Complete the Venn diagram below, writing the number of species of fruit-eating monkeys in each region to represent the situation. (Use “A” for apple, “B” for banana)



How many species have a diet that does not include apples nor bananas?

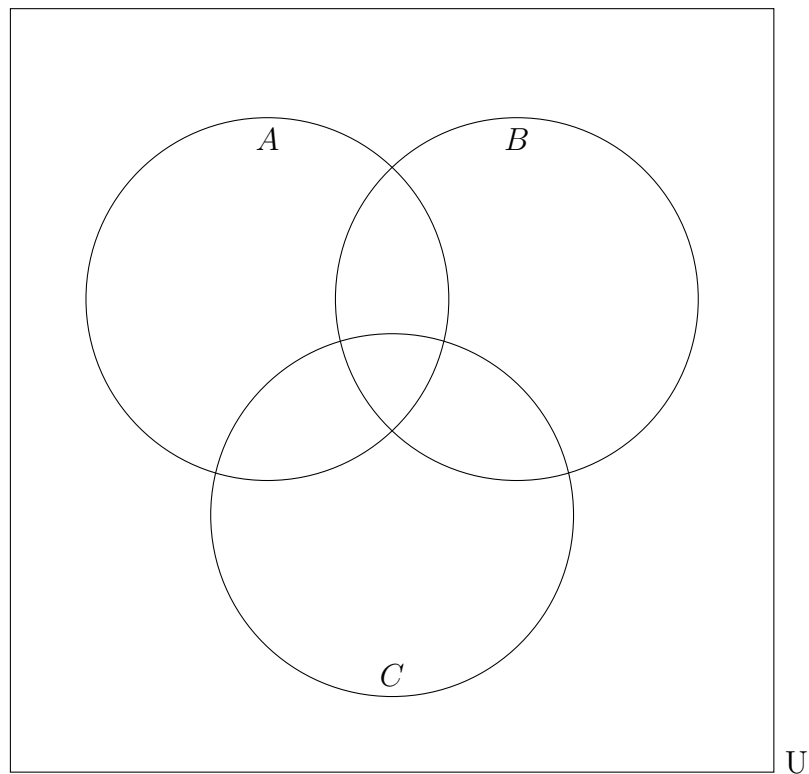
Name:

### Challenge

5. There are 90 juniors at a school taking courses as follows:

- 27 are taking Algebra
- 35 are taking Botany
- 51 are taking Chemistry
- 11 are taking Algebra and Chemistry
- 6 are taking Algebra and Botany
- 13 are taking Botany and Chemistry
- 4 are taking all three subjects

Complete the Venn diagram below with the number of students in each region to represent the situation.



How many juniors are taking none of the three courses?