

8 June 2022

1. Given:

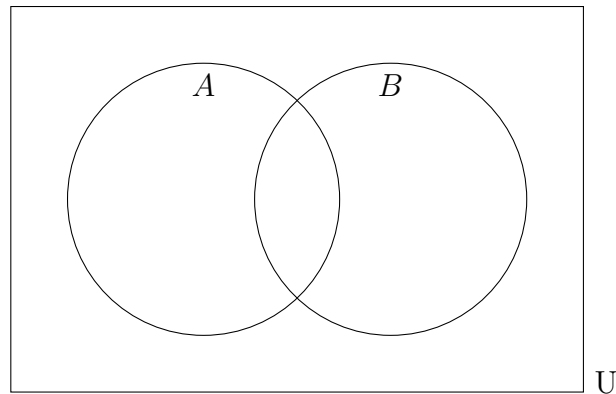
$$A = \{a, b, c, d, e\} \quad B = \{a, e, i, o, u\}$$

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

2. 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?

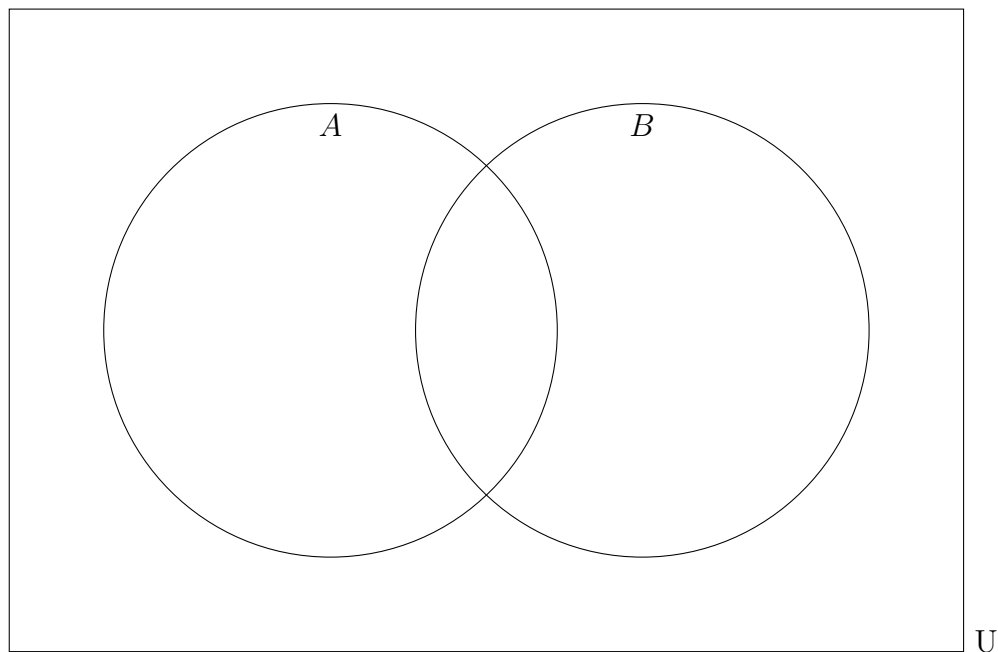
3. The universal set U is defined as the set of positive integers less than 13. The subsets A and B are defined as follows:

$A = \{\text{integers that are multiples of 3}\}$

$B = \{\text{prime numbers}\}$

(note: Prime numbers have only themselves and one as factors. One is not considered a prime.)

- (a) How many elements are in the universal set U ?
- (b) List the members of A
- (c) List the members of B
- (d) Place the elements of A and B in the appropriate regions in the Venn diagram below.



- (e) List the items in the set $A \cap B$