

# Venn Diagrams

1. Given the set:

$$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

and the subset:

$$A = \{x \in U : x \text{ is even}\}$$

- (a) Draw a Venn diagram representing this information.
  - (b) Find the complement  $A'$  using Venn Diagram.
2. Given:  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ ,  $A = \{1, 2, 5, 7, 8, 9, 10\}$ ,  $B = \{2, 6, 7\}$ . Find the following using Venn Diagram.
    - (a)  $A'$
    - (b)  $A \cap B$
    - (c)  $A \cup B$
  3. In a class of 50 students, 30 take French and 25 take Spanish. If 10 students take both subjects:

- (a) How many students take only French?
  - (b) How many students take only Spanish?
  - (c) How many students take neither subject?
4. In a survey of 100 people, 65 people like coffee and 45 like tea. If 25 people like both:
- (a) How many people like only coffee?
  - (b) How many people like only tea?
  - (c) How many people like neither coffee nor tea?
5. Out of 80 students, 48 passed in English, 39 passed in Mathematics, and 24 passed in both:
- (a) How many passed only English?
  - (b) How many passed only Mathematics?
  - (c) How many failed both subjects?
6. In a club of 60 members, 35 play tennis, 28 play badminton, and 15 play both:
- (a) How many members play only tennis?

- (b) How many members play only badminton?
  - (c) How many members play neither sport?
7. A survey shows 120 people use social media apps. 75 use WhatsApp, 60 use Instagram, and 30 use both:
- (a) How many use only WhatsApp?
  - (b) How many use only Instagram?
  - (c) How many use neither WhatsApp nor Instagram?
8. 150 college freshmen were interviewed. 85 were registered for a Math class, 70 were registered for an English class, 50 were registered for both Math and English.
- (a) How many signed up only for a Math Class?
  - (b) How many signed up only for an English Class?
  - (c) How many signed up for Math or English?
  - (d) How many signed up neither for Math nor English?

9. A class has 30 students. 16 of them take History, 19 take Mathematics, and 18 take Chemistry. 10 students take both Mathematics and Chemistry, 11 students take both Mathematics and History, and 8 students take both History and Chemistry.
- (a) How many students took all three subjects?
  - (b) How many students took only one subject?