MODULE 11.1 - SETS AND SUBSETS

LEARNING OBJECTIVES

In this section, you will:

- Sets, elements of sets, and subsets.
- Union, intersection, and complement of sets
- Universal set and empty set

SETS

- State the definition of a set.

- State the commonly used notation and the definition of the empty set.

- State the definition of a subset and a proper subset.

UNION, INTERSECTION, AND COMPLEMENT

- State the definition of union, intersection, and complements.

- State the definition of the universal set.

MODULE 11.1 - CLASS NOTES

1. Can a subset and set have the same element? (Hint: Use the definition of a proper subset.)

2. Provide an example of the empty set.

3. Suppose $A = \{1, 2, 3, 4\}$. Determine how many subsets are in A and list them.

4. Consider the sets:

   $A = \{\text{red}, \text{green}, \text{blue}\}$ $B = \{\text{red}, \text{yellow}, \text{orange}\}$ $C = \{\text{red}, \text{orange}, \text{yellow}, \text{green}, \text{blue}, \text{purple}\}$

   - Find $(A \cup B)$

   - Find $(A \cap B)$

   - Find $(A \cup C)$

   - Find $(A \cap B) \cap C$

   - Find $(A \cup C) \cap B$

   - Find $(A \cup B)^C \cap C$

   - Find $(A \cap B)^C \cap C$