AIS Learning

O/L Mathematics
Practice Tutorial

Lesson 02: Set Theory

1. Set Basics:
    a. Define a set in the context of Set Theory.
    b. What is the cardinality of a set?

2. Set Operations:
    a. Explain the union of two sets.
    b. If set A = {1, 2, 3} and set B = {3, 4, 5}, find A ∪ B.

3. Intersection and Complement:
    a. Define the intersection of two sets.
    b. If set A = {2, 4, 6} and set B = {3, 6, 9}, find A ∩ B.

4. Set Identities:
    a. State the identity property of union for sets.
    b. If set A = {1, 2, 3} and set B = {3, 4, 5}, find A ∪ (A ∩ B).

5. Subsets:
    a. Define a subset.
    b. If set A = {1, 2, 3} and set B = {1, 2, 3, 4, 5}, is A a subset of B?

6. Power Set:
    a. Define the power set of a set.
    b. If set C = {a, b}, find the power set P(C).

7. Set Operations with Venn Diagrams:

a. Draw a Venn diagram to represent A ∪ (B ∩ C).

b. Explain the elements in the region where only set B exists in the Venn diagram.

8. Cartesian Product:

a. Define the Cartesian product of two sets.

b. If set X = {1, 2} and set Y = {a, b}, find X × Y.

9. Set Relations:

a. Define an equivalence relation between sets.

b. If set A = {2, 4, 6} and set B = {1, 2, 3}, determine if there is an equivalence relation between A and B.

10. Set Applications:

a. Explain a real-world application of set theory.

b. If set U represents the universal set of all students in a school, and set A represents students who study mathematics, describe the complement of set A.

Try those questions by yourself and submit your answers to us.
We can evaluate it for you!!!!
Happy Learning!!!!

-Evaluation Team AIS Learning