**Problem 1: Integers**

**Problem Statement:**

Write pseudocode to create a program that determines whether a number is positive, negative, or zero. Use deductive reasoning to establish the logical flow of the program.

**1. Identify the Premises (Logical Rules):**

* If a number is **greater than 0**, it is **positive**.
* If a number is **less than 0**, it is **negative**.
* If a number is **equal to 0**, it is **zero**.

**2. Analyze the Premises:**

These conditions are **mutually exclusive** — a number can only be in **one of the three** categories.

We can check the conditions using a sequence of if, else if, and else statements.

**3. Draw a Conclusion (Logical Flow):**

* First, check if the number is greater than 0 → print "Positive"
* Then check if it is less than 0 → print "Negative"
* If neither, it must be 0 → print "Zero"

**4. Test the Conclusion:**

* Input: 10 → Output: Positive
* Input: -7 → Output: Negative
* Input: 0 → Output: Zero

**5. Pseudocode:**

Start

Prompt user to enter a number

Read number

If number > **0** then

Display "Positive"

Else **if** number < **0** then

Display "Negative"

Else

Display "Zero"

End If

End

**Problem 2: Senior Discount**

**Problem Statement:**

Write pseudocode to create a program that checks whether a person is eligible for a senior citizen discount. The program should take the person's age as input. If the age is 65 or older, print "Eligible for senior discount"; otherwise, print "Not eligible for senior discount".

**1. Identify the Premises (Logical Rules):**

* If a person’s **age is 65 or older**, they are **eligible** for a senior citizen discount.
* If the **age is less than 65**, they are **not eligible**.

**2. Analyze the Premises:**

There are only **two mutually exclusive outcomes** based on the person’s age:

* 65 and above → eligible
* Below 65 → not eligible

**3. Draw a Conclusion (Logical Flow):**

* If age >= 65 → Print "Eligible for senior discount"
* Else → Print "Not eligible for senior discount"

**4. Test the Conclusion:**

* Input: 70 → Output: Eligible
* Input: 50 → Output: Not eligible
* Input: 65 → Output: Eligible

**5. Pseudocode:**

Start

Prompt user to enter age

Read age

If age >= **65** then

Display "Eligible for senior discount"

Else

Display "Not eligible for senior discount"

End If

End