



Practice 2: Basic Calculator

Variable declaration, assignment, and arithmetic operations
Programming Course in Snap! and Pseudocode

What is a Variable?

Imagine a variable is a "box" with a name where you can store data (a number or text). Unlike the automatic *answer* in Snap!, variables allow us to store many different pieces of information at the same time without them being erased.

Objectives of this practice

- Learn to **create (declare)** variables with descriptive names.
- Understand the concept of **assignment** (storing a value in the box).
- Perform basic mathematical calculations (addition, subtraction, multiplication, and division).
- Compare how variables are managed in blocks, pseudocode, and Python.

Step by Step: Snap! vs Pseudocode

1. Creating and assigning variables

To store a number in a variable called *points*:

- **In Snap!:** **Variables** category, "Make a variable" button. We use the block `set [points] to (10)`.
- **In Pseudocode:** We use the assignment symbol `<-`.
- *Example:* `points <- 10`

2. Arithmetic Operations

We can use stored values to calculate new ones:

- **In Snap!:** We use the green blocks from the **Operators** category (`+`, `-`, `*`, `/`).
- **In Pseudocode:** We use standard mathematical symbols.
- *Example:* `total <- price1 + price2`

THE CHALLENGE: The Addition Calculator

You must create a program that asks the user for two numbers, adds them up, and displays the result.

PART A: In Snap!

1. Create two variables: `number1` and `number2`.
2. Ask for the first number and use `set [number1] to (answer)`.
3. Ask for the second number and use `set [number2] to (answer)`.
4. Create a `result` variable and assign it the sum of both.
5. Make the sprite say the final result using the `join` block.

PART B: In Pseudocode Copy and complete the following outline in your notebook:

```
Algorithm BasicCalculator
  Define n1, n2, result As Real
  Write "Enter the first number:"
  Read n1
  Write "Enter the second number:"
  Read n2
  result <- n1 + n2
  Write "The sum of the numbers is: ", result
EndAlgorithm
```

Did you know...?

In Python, variables don't need a special word to be created; you just name them:

```
n1 = float(input("Number 1: "))
n2 = float(input("Number 2: "))
print(f"The result is n1 + n2")
```

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