Typical solution for Tutorial (TD) N°: 01

Exercise 1 :
Answer true or false:

a) False
b) False
c) true
d) true
e) False
f) true
g) true

Exercise 2:
Write the algorithm that allows you to have a meal in a restaurant.

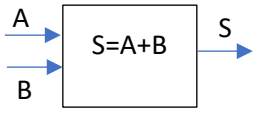
Algorithm have_a_meal
begin

1. Enter the restaurant and choose a table
2. review the menu to decide what to order.
3. Call the waiter/waitress to take your order.
4. When the food arrives, check if it matches your order.
5. Enjoy your meal
6. request the bill from the waiter/waitress.
7. Pay the bill, either by cash or card
8. Exit the restaurant.

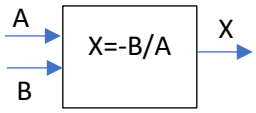
End.

Exercise 3:
Show in diagram form the inputs, outputs and relationships between them for the following algorithms:

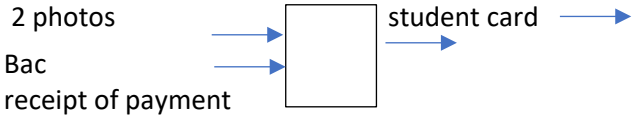
- The four arithmetic operations on two numbers. (+ in the classroom, and /, -, * at home).



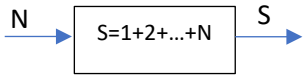
- Solving a first-degree equation (A X + B = 0).



- First-year student registration.



- The sum of natural numbers less than N.



Exercise 4:
If we had three buckets. The first bucket "B1" is full with a capacity of 10 liters, the second bucket "B2" is empty with a capacity of 7 liters, and the third bucket "B3" is empty with a capacity of 3 liters. Write the algorithm that allows us to obtain 5 liters.

0. initial state (B1=10, B2=0, B3=0)

1. pour 7L of B1 into B2 (B1=3, B2=7, B3=0)
2. We pour 3L of B2 in B3. (B1=3, B2=4, B3=3)
3. We pour B3 into B1. (B1=6, B2=4, B3=0)
4. We pour 3L of B2 in B3. (B1=6, B2=1, B3=3)
5. We pour B3 into B1. (B1=9, B2=1, B3=0)
6. We pour B2 into B3. (B1=9, B2=0, B3=1)
7. We pour 7L of B1 in B2. (B1=2, B2=7, B3=1)
8. We pour 2L of B2 in B3. (B1=2, B2=5, B3=3)