Ministry of Higher Education and Scientific Research Hassiba Benbouali University of Chlef Faculty of Exact Sciences and Computer Science 1st year IT 2024-2025 Module: Algorithmics and data structure 1



## DW Sheet N° 01: Initiation to Algorithms

## Exercise 01:

1. What is an algorithm?

2. Give the general structure of an algorithm.

3. What are a variable and a constant in an algorithm?

- 4. What are the characteristics of a variable and those of a constant?
- 5. What is an identifier in algorithm?

6. Indicate whether the following identifiers are syntactically correct:

Value \_ Value 1Value Value 2 - Value\_3 Value@ c\_12323

**Exercise 02:** What is the type and value of the following expressions (N.-B: some may be incorrect):

1	8*9	1 > 2	6 < 7 and 8 < 5
1,5	11/10	3 ≤ 4	6 < 7 or 8 < 5
2,0	12 div 13	2*2≠3+1	"1+2"
"hello"	14 mod 5	6=5	2 and 2
"3"	15+16.0	"12" > "2"	"true"
	17.86.5	" "=""	4+5
	19/1.9	2=2.0	67
FALSE	not TRUE	3=3.1	4/5=4 div 5
"2"+"3"	Not (6>7)	x≤0 or x>0	"hello"+"everybody '
true and false	true or true	"true and false"	"hello" ≤ "every one"
"20060901"	> "20060831"		

Exercise 03 : Convert the following four formulas into expressions: with

The expression 1 is defined in the set of real numbers, Expressions 2, 3 and 4 are defined in

 $\frac{2 + \frac{2.5 \times 1.5}{1.2 - 10.3}}{2} \qquad \frac{4}{5} - \frac{1}{1 + \frac{1}{2}} \qquad 1 + \frac{1}{2} \qquad 1 + \frac{1}{\frac{1}{2}} \qquad \text{the set of}$ 

integers.

**Exercise 04:** Give the type and result of the following expressions, or say if they are not well formed.

Example <sup>:</sup>	<b>round (</b> $2.6 + 1$ )	) > 4 / 3		
	real integ	ger integer integer		
	real 3.6	real 1.33		
	integer 4			
	Booleen (true)			
2 - 5 * 3 + 4		2 - (5 * 3 + 4)		
(2 - 5) * (3 + 4)		2.12/3		
12 div 3		$11 \mod 3 + 5.2$		
$11~{\rm div}~3~{\rm div}~2$		12 > 3 > 4		
1.0 * 2 + 3 - 4		3.5 + 7 > 4 > False		
(50 < 3 * 8)		(12 > 24) + (2 + 4 =	12)	
False OR Not	False AND True.	(37 - 3 >= 14) - 'a' +	3	