University of Science and Technology of Hanoi		Academic year: 2023 - 2024	
	***	Date: 22/02/2024	Time: 45 minutes
Midterm		Important instructions	
Subject: Algebraic Structure		(according to lecturer's decision)	
Code : 07	No of pages: 01		
Student name		Student's ID	

Problem 1 (6pts)

A binary operation o is defined as following:

$$a \circ b = a+2b$$

Is the binary operation associative and commutative? Justify your answer.

Problem 2 (8pts)

- 1. Let $G = \{|x|, \text{ for all } x \in \mathbb{R}\}$. Is (G, +) a group? Justify the answer.
- 2. Is (G, .) a group? Justify the answer.

Problem 3 (6pts)

Using induction to prove that: $6^n - 1$ is divisible by 5, for n any positive integer.

----END----