Fuzzy Systems
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Assignment Sheet 2

Assignment 5   Characteristic Function

What is the characteristic function of the set $E = \{x \mid x \neq x\}$?

Assignment 6   Linguistic Terms

Assume you were told that the room temperature is *around* $20°C$. How would you represent this piece of information by

a) a set and

b) a fuzzy set?

Assignment 7   Linguistic Terms

The middle point of a line segment is, at the same time, *close to* and *far from* its extreme points. How would you geometrically depict this idea through

a) sets and

b) fuzzy sets?

Assignment 8   Membership Function

Given the fuzzy set μ with the following membership function

$$\mu(x) = \begin{cases} x - 5, & \text{if } 5 \leq x \leq 6 \\ 7 - x, & \text{if } 6 \leq x \leq 7 \\ 0, & \text{otherwise.} \end{cases}$$

a) Sketch the graph of the function.

b) What are the possible semantics of this fuzzy set?