

Assignment #1

ECE449, Intelligent Systems Engineering
Department of Electrical and Computer Engineering, University of Alberta

No late assignments accepted!

Fall 2019
Dr. Petr Musilek

Points: 10

Due: Thursday, September 19, 2019, 3:30 PM,
in the assignment box in the ETLC atrium

Note: Show your work! Marks are allocated
for technique and not just the answer.

Student Name:

ID Number:

1. [2 marks] Write the expression for the characteristic function of the set $S = \{x/x > 10\}$.

2. [5 marks] Given the fuzzy set A with the membership function

$$A(x) = \begin{cases} 0 & \text{for } x \leq 20 \\ (x - 20)/15 & \text{for } 20 < x < 35 \\ 1 & \text{for } 35 \leq x \leq 45 \\ (60 - x)/15 & \text{for } 45 < x < 60 \\ 0 & \text{for } x \geq 60 \end{cases}$$

a) Sketch the graph of the function and identify its type

b) Attach a possible linguistic description to the concept represented by fuzzy set A

3. [3 marks] Consider fuzzy sets A and B shown in the following figure. In the same figure, sketch results of the following operations: $A \cap B$, $A \cup B$, $\text{NOT}(A)$. Label resulting graphs accordingly.

