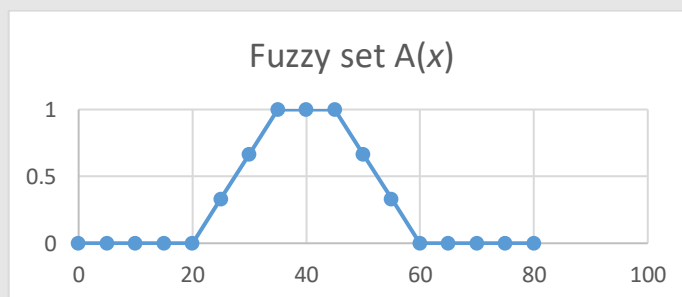# Assignment #1

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1. What is the characteristic function of the set $S = \{x / x > 10\}$?

$$S(x) = \begin{cases} 0 \ \text{ for } x \le 10 \\ 1 \ \text{ for } x > 10 \end{cases}$$

2. Given the fuzzy set A with the membership function

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

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

Fuzzy set A(x)

Type - trapezoidal m.f.

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

Some possible solutions: About 40
                                Age of people in active workforce

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