FUZZY LOGIC LABORATORY, Assignment #1

1) The following two are discrete fuzzy sets.

$$X = \left\{ \frac{0}{0} + \frac{0.3}{1} + \frac{0.7}{2} + \frac{0.8}{3} + \frac{0.9}{4} + \frac{1}{5} \right\}$$

$$Y = \left\{ \frac{1}{0} + \frac{0.5}{1} + \frac{0}{2} + \frac{0.5}{3} + \frac{0.8}{4} + \frac{0.3}{5} \right\}$$

Using MATLAB,

a. Plot both of these fuzzy sets in the form of fuzzy singletons.

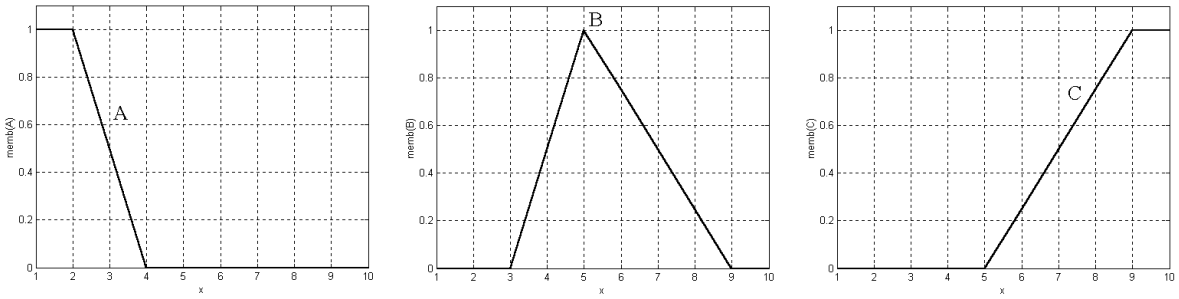
b. Calculate $X \cup Y$.

c. Calculate $X \cap Y$.

d. Calculate $\overline{X \cup Y}$.

e. Calculate $\overline{X \cap Y}$.

2) The following three are continuous fuzzy sets.



Using MATLAB,

a. Plot these three sets in the same figure.

b. Plot $A \cup B \cup C$.

c. Plot $A \cap B \cup C$.

d. Plot $\overline{A} \cup \overline{B} \cup \overline{C}$.

e. Plot $\overline{A} \cap \overline{B} \cap \overline{C}$.

Hint: You may use `min, max, plot, stem, hold on, hold of, xlabel, ylabel` commands of MATLAB.

Helping Source: Textbook and supplementary material uploaded to DYS: http://enf.ogu.edu.tr/golddys/