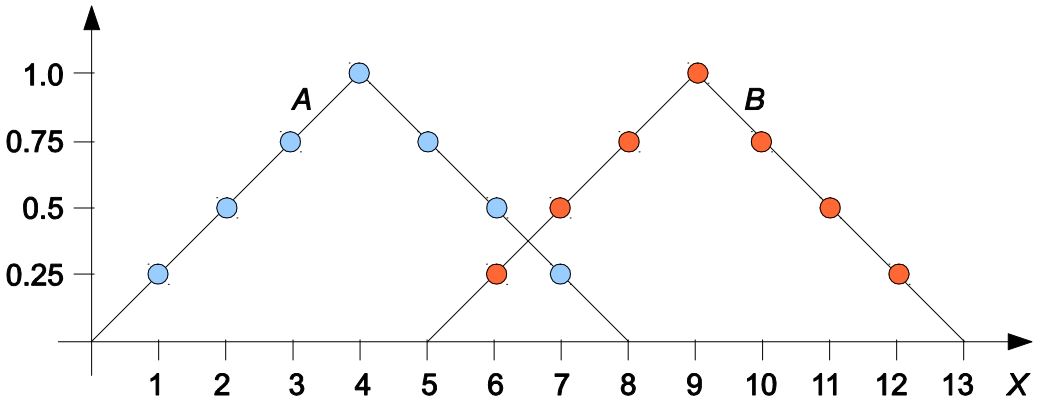
ECE 449 In-class exercise #1 **Fall 2019**

Consider following two discrete fuzzy sets:

A=[0, 0.25, 0.5, 0.75, 1.0, 0.75, 0.5, 0.25, 0] on universe X={0,1,2,3,4,5,6,7,8}

B=[0, 0.25, 0.5, 0.75, 1.0, 0.75, 0.5, 0.25, 0] on universe X={5,6,7,8,9,10,11,12,13}

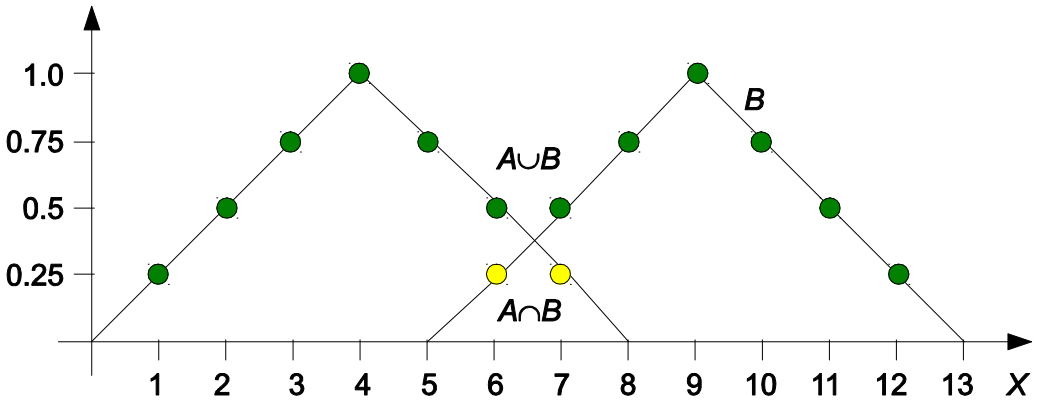
a) Sketch graphs of these two fuzzy sets



b) Determine union and intersection of fuzzy sets A and B

$A \cup B$ =[0, 0.25, 0.5, 0.75, 1.0, 0.75, 0.5, 0.5, 0.75, 1.0, 0.75, 0.5, 0.25, 0]

$A \cap B$ =[0,0,0,0,0,0,0,0.25,0.25,0,0,0,0,0,0], both on X={1,2,3,4,5,6,7,8,9,10,11,12,13}



Notes:

1) The fuzzy sets A, B, $A \cap B$, $A \cup B$ are all discrete; the lines are used only to connect individual members that belong to one fuzzy set together, so their membership to a particular fuzzy set can be clearly seen.

2) Union and intersection are modeled using maximum and minimum operation, respectively