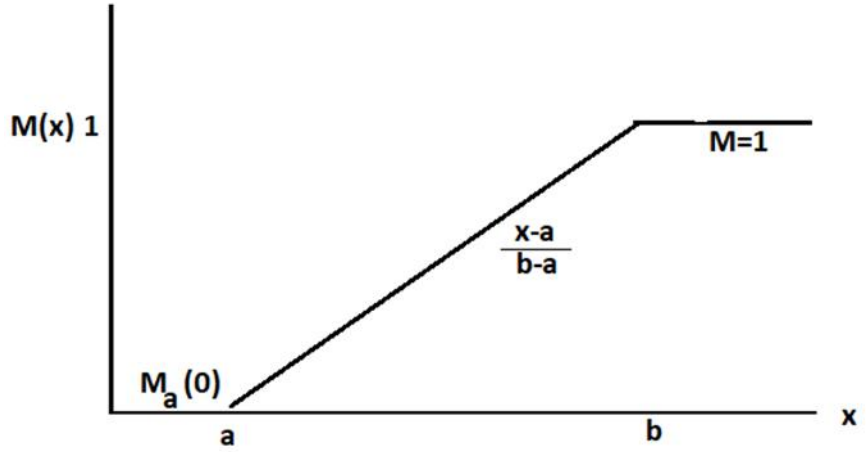
Some fuzzy mathematical models of membership functions

1-The fuzzy sets whose members have membership degrees starting from a certain value'a' ,then we take a linear membership function that increases in a straight line with the progress of the values of x to reach full membership starting from a certain value, let it be b, since b > a, then the function that can be used for this purpose is as follows:

$$\mu_A(x) = \begin{cases} 0 & ; \ x < a \\ \dfrac{x-a}{b-a} & a \le x \le b \\ 1 & x > b \end{cases}$$



2- The fuzzy sets whose elements have full membership degrees from the beginning to a certain value ’a’, the membership function is taken as a linear function, i.e. in the form of a straight line with the values of x being presented until it reaches a membership degree equal to zero at a certain value ’b’, and this relationship can be represented by the following equation:

$$\mu_A(x) = \begin{cases} 1 & ; \ x < a \\ \dfrac{b-x}{b-a} & a \le x \le b \\ 0 & x > b \end{cases}$$