The distribution function of a random variable X is a function that assigns, for every point, the probability accumulated up to the above mentioned value. That is :

$$F(X) = p(X \leq x)$$

For example, we will compute the distribution function of the random variable X, resulting from throwing a perfect dice.

The following table shows the values of $F(x)$:

x	F (x)
$x < 1$	0
$1 \leq x < 2$	$\dfrac{1}{6}$
$2 \leq x < 3$	$\dfrac{2}{6}$
$3 \leq x < 4$	$\dfrac{3}{6}$
$4 \leq x < 5$	$\dfrac{4}{6}$
$5 \leq x < 6$	$\dfrac{5}{6}$
$x \leq 6$	1

The value of the function distribution in -∞ will always be 0, while the value in +∞ will always be 1.

This turns out to be quite intuitive, since the probability that the value of x is smaller than -∞ is zero, and the probability that it is less than +∞ is 1 (since it is always less or equal to +∞).
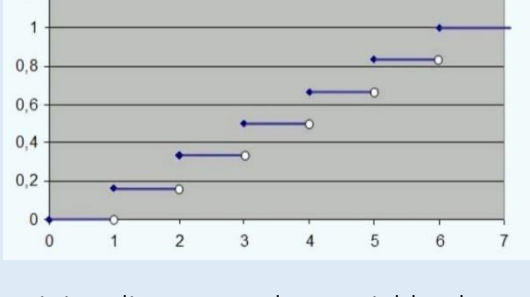
Since it is a discrete random variable, the distribution function will be discrete. Note that the probability of obtaining a result lower than 5,2 is the same as that of lower than 5,3 or 5,9.