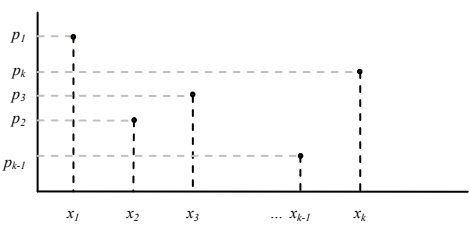
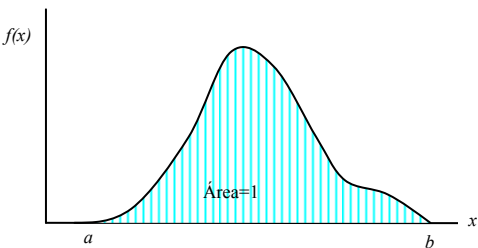
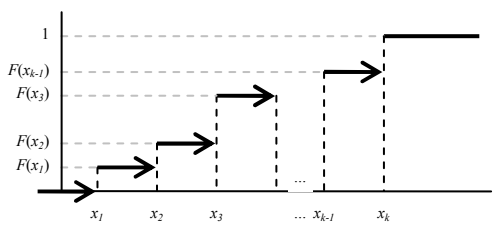
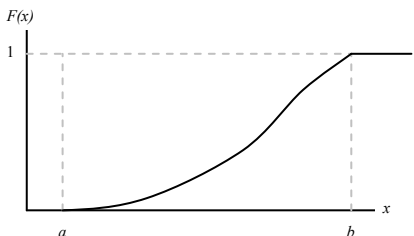


Dado un experimento aleatorio, una variable aleatoria X es una **función** que asigna a cada suceso del espacio muestral un número real.

| VARIABLES DISCRETAS | VARIABLES CONTINUAS | | | | | | | | | | | | |
|--|---|--------------------------|-------|-------|-------|-------------|-----|-----|-------|-------------------------------|--|----------|---|
| <p>Una variable X es discreta si los números asignados a los sucesos elementales del espacio muestral son puntos aislados. Sus posibles valores constituyen un conjunto finito o infinito numerable.</p> | <p>Una variable aleatoria X es continua si los valores asignados pueden ser cualesquiera dentro de cierto intervalo.</p> | | | | | | | | | | | | |
| <p>Función masa de probabilidad:</p> <table border="1"> <thead> <tr> <th>x_i</th><th>$P[X=x_i]$</th></tr> </thead> <tbody> <tr> <td>x_1</td><td>p_1</td></tr> <tr> <td>x_2</td><td>p_2</td></tr> <tr> <td>...</td><td>...</td></tr> <tr> <td>x_k</td><td>p_k</td></tr> <tr> <td>suma</td><td>1</td></tr> </tbody> </table> <p>x_1, x_2, \dots, x_k son los posibles valores de X</p>  | x_i | $P[X=x_i]$ | x_1 | p_1 | x_2 | p_2 | ... | ... | x_k | p_k | suma | 1 | <p>Función de densidad:</p> <p>$f(x)$ con</p> <ul style="list-style-type: none"> $f(x) \geq 0$ $\int_a^b f(x) = 1$ <p>$[a, b]$ intervalo donde toma valores X</p>  |
| x_i | $P[X=x_i]$ | | | | | | | | | | | | |
| x_1 | p_1 | | | | | | | | | | | | |
| x_2 | p_2 | | | | | | | | | | | | |
| ... | ... | | | | | | | | | | | | |
| x_k | p_k | | | | | | | | | | | | |
| suma | 1 | | | | | | | | | | | | |
| <p>Función de distribución:</p> <table border="1"> <thead> <tr> <th>x_i</th><th>$F(x_i) = P[X \leq x_i]$</th></tr> </thead> <tbody> <tr> <td>x_1</td><td>p_1</td></tr> <tr> <td>x_2</td><td>$p_1 + p_2$</td></tr> <tr> <td>...</td><td>...</td></tr> <tr> <td>x_k</td><td>$p_1 + p_2 + \dots + p_k = 1$</td></tr> </tbody> </table>  | x_i | $F(x_i) = P[X \leq x_i]$ | x_1 | p_1 | x_2 | $p_1 + p_2$ | ... | ... | x_k | $p_1 + p_2 + \dots + p_k = 1$ | <p>Función de distribución:</p> <p>$F(x) = P[X \leq x]$ con</p> <ul style="list-style-type: none"> $\lim_{x \rightarrow \infty} F(x) = 1$ $F(x) = \int_{-\infty}^x f(k) dk$  | | |
| x_i | $F(x_i) = P[X \leq x_i]$ | | | | | | | | | | | | |
| x_1 | p_1 | | | | | | | | | | | | |
| x_2 | $p_1 + p_2$ | | | | | | | | | | | | |
| ... | ... | | | | | | | | | | | | |
| x_k | $p_1 + p_2 + \dots + p_k = 1$ | | | | | | | | | | | | |
| <p>Esperanza:</p> $E[X] = \sum_{i=1}^k x_i P[X = x_i]$ | <p>Esperanza:</p> $E[X] = \int_{-\infty}^{\infty} x f(x) dx$ | | | | | | | | | | | | |
| <p>Varianza:</p> $Var[X] = \sum_{i=1}^k (x_i - E[X])^2 P[X = x_i]$ | <p>Varianza:</p> $Var[X] = \int_{-\infty}^{\infty} (x - E[X])^2 f(x) dx$ | | | | | | | | | | | | |