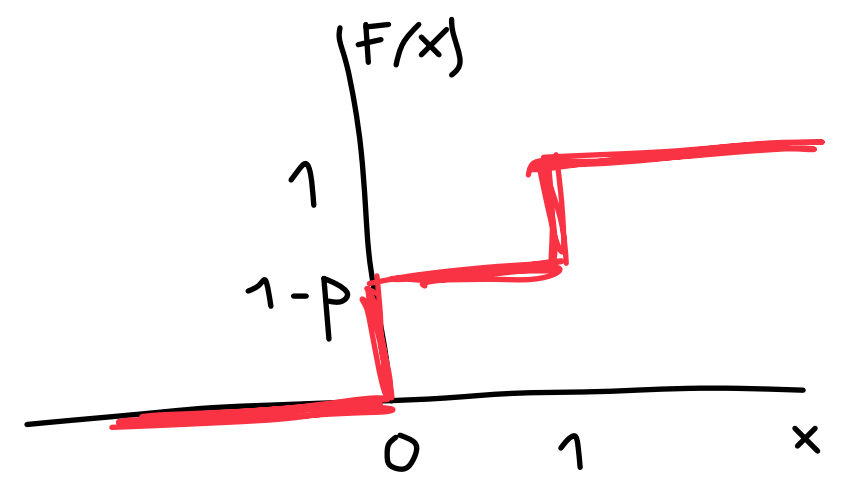
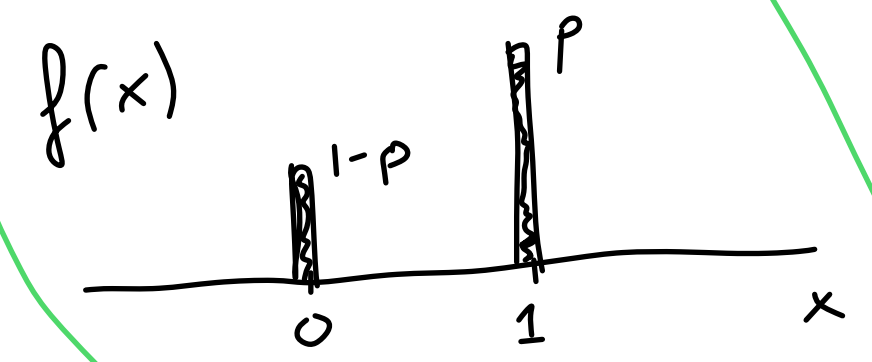


Bernoulli

$$f(x) = \begin{cases} p & x=1 \\ 1-p & x=0 \end{cases}$$

$$F(x) = \begin{cases} 0 & x < 0 \\ 1-p & 0 \leq x < 1 \\ 1 & x \geq 1 \end{cases}$$



$$E[X] = 1 \cdot p + 0 \cdot (1-p) = 1 \cdot p = p$$

↑
VALORE ATTESO MOMENTO PRIMO

ESEMPIO

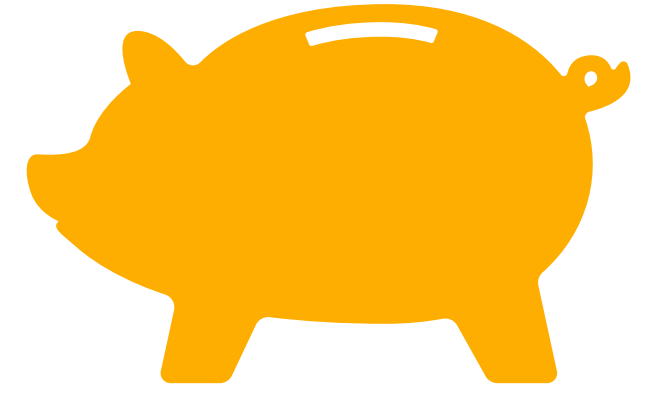
5 persone peso: x_1, x_2, x_3, x_4, x_5 Kg
70, 75, 66, 86, 59

$$E[X] = \frac{x_1 + x_2 + x_3 + x_4 + x_5}{5} = \frac{1}{5} \sum_{i=1}^5 x_i = \frac{70 + 75 + 66 + 86 + 59}{5} = \frac{356}{5} = 71.2 \text{ Kg}$$

Nel secondo caso: $70 \cdot \frac{3}{7} + 75 \cdot \frac{1}{7} + 66 \cdot \frac{1}{7} + 86 \cdot \frac{1}{7} + 59 \cdot \frac{1}{7} = 70.86$

ESEMPIO

Rendimento	Probabilità
+ 40%	5%
+ 10%	55%
- 5%	30%
- 10%	10%



$$E[X] = 0.4 \cdot 0.05 + 0.1 \cdot 0.55 + (-0.05) \cdot 0.3 + (-0.1) \cdot 0.1 = 0.05 \rightarrow 5\%$$

$$E[X^2] = 0.4^2 \cdot 0.05 + 0.1^2 \cdot 0.55 + (-0.05)^2 \cdot 0.3 + (-0.1)^2 \cdot 0.1 = 0.16 \cdot 0.05 + 0.01 \cdot 0.55 + 0.0025 \cdot 0.3 + 0.01 \cdot 0.1 = 0.01525$$

↑
MOMENTO SECONDO