

14-05-2019

$$X = \{-10, -2, 3\} \quad Y = \{-6, 3, 6, 7\}$$

$$\begin{matrix} -10 & -2 & 3 \\ 0.36 & 0.37 & 0.27 \end{matrix} \rightarrow \text{MARGINALE } p_X(x)$$

$P_{Y|X}(y|x)$

	-6	3	6	7
-10	0.19	0.20	0.33	0.28
-2	0.23	0.23	0.21	0.27
3	0.19	0.26	0.32	0.23

PROBABILITÀ CONGIUNTA:

	-6	3	6	7	$P(x)$
-10	0.0636	0.0720	0.1138	0.1008	0.36
-2	0.1073	0.0851	0.0777	0.0999	0.37
3	0.0513	0.0702	0.0864	0.0621	0.27
$P(y)$	0.2210	0.2273	0.2829	0.2628	

1) PROBABILITÀ DI  $(-10, 3)$ ?

$$= 0.0720 //$$

2)  $\text{Cov}(X, Y)$  CALCOLARE

$$\text{Cov}(X, Y) = E[\overset{XY}{XY}] - (E[X] \cdot E[Y])$$

$$E[X] = -3.53$$

$$E[Y] = 2.8569$$

$$E[XY] = -11.2263$$

$$\begin{aligned} & \downarrow -11.2263 - (-3.53 \cdot 2.8569) \\ & = -1.141443 // \end{aligned}$$

3)  $X$  e  $Y$  sono <sup>non</sup> correlate? FALSE

4) ~~PROVA~~ DETERMINARE  $\rho(X, Y)$

$$\begin{aligned} \rho(X, Y) &= \frac{\text{Cov}(X, Y)}{\sqrt{\text{Var}(X) \cdot \text{Var}(Y)}} \\ &= \frac{-1.141443}{\sqrt{27.4491 \cdot 25.11742}} \\ &= -0.0434713 // \end{aligned}$$

$$E(X^2) = 39.91$$

$$E(Y^2) = 33.2793$$

$$\text{Var}(X) = 27.4491$$

$$\text{Var}(Y) = 25.11742$$