26 Octubre 2016

Cap. 3. la variable aleatoria continua.

función de densidad de probabilidad

a) $f(x) \geq 0 \quad \forall x \in \mathbb{R}$ $\mathbb{R}$ conjunto de Reales

b) $\int_{-\infty}^{\infty} f(x)dx = 1$

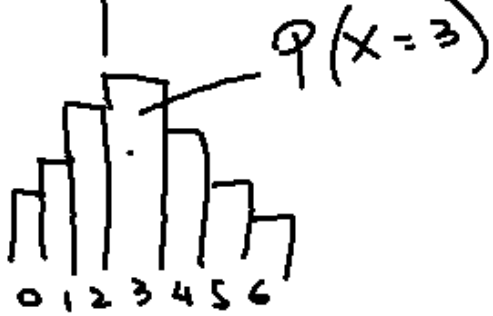
c) $P(a \leq x \leq b) = \int_a^b f(x)dx \quad a < b$

$P(x = a) = \int_a^a f(x)dx = 0$

discreto

X	0	1	2	....	n
$P(x)$					

$$\sum_{x=0}^{n} P(X=x) = 1$$



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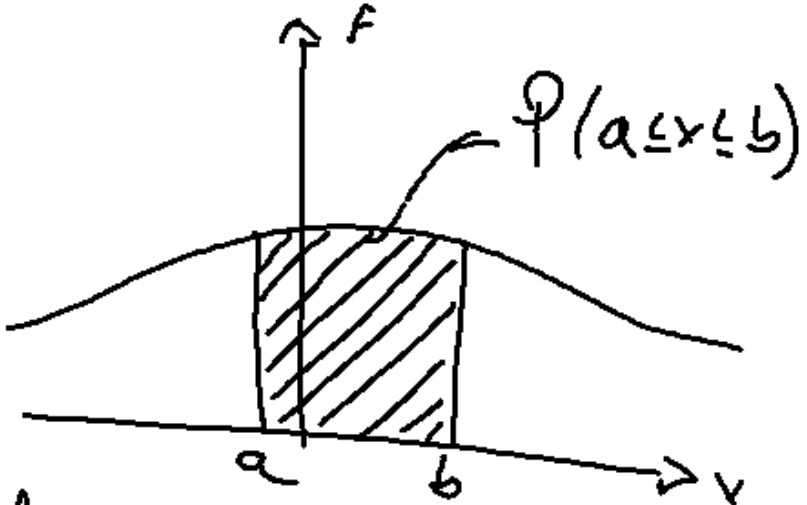
continua

$$f(x) \geq 0 \quad \forall x \in \mathbb{R}$$

$$\int_{-\infty}^{\infty} f(x)\,dx = 1$$

$$P(a \leq x \leq b) = \int_{a}^{b} f(x)\,dx \qquad a < b$$



función acumulada de Probabilidades

$$F(x) = P(X \leq x) = \int_{-\infty}^{x} f(h)\,dh \quad \forall x \in \mathbb{R}$$

$$P(X \leq b) = F(b) = \int_{-\infty}^{b} f(h)\,dh$$

$$\Rightarrow P(X \geq a) = 1 - P(X < a) = 1 - \int_{-\infty}^{a} f(h)\,dh$$

$$P(a \leq X \leq b) = F(b) - F(a) = \int_{-\infty}^{b} f(h)\,dh - \int_{-\infty}^{a} f(h)\,dh$$

media

$$\mu = E(x) = \int_{-\infty}^{\infty} x \cdot f(x)\,dx$$

σ^2 varianza

$$\sigma = V(x) = \int_{-\infty}^{\infty} (x - E(x))^2 \cdot f(x)\,dx$$

$$V(x) = E(x^2) - (E(x))^2$$

- $\sigma = \sqrt{V(x)}$

desviacion estandar

. MODELO NORMAL

μ σ^2 σ

$$f(x) = \frac{1}{\sigma\sqrt{2\cdot\pi}} \cdot e^{\frac{(x-\mu)^2}{2\sigma^2}} \qquad x \in (-\infty, \infty) \in \mathbb{R}$$

$N(\mu, \sigma^2)$

$$P(1 \leq x \leq 3) = F(3) - F(1)$$

$$= 0.9522 - 0.0478$$

$$= 0.9044$$

$0 \leq P \leq 1$

Distrib. Normal Estándard

$\mu = 0$

$\sigma = 1$

$$\frac{e^{\frac{(x-\mu)^2}{2\sigma^2}}}{\sigma\sqrt{2\pi}}$$

$$\frac{e^{\frac{z^2}{2}}}{\sqrt{2\pi}}$$

$$z = \frac{(x-\mu)}{\sigma}$$

clase 2016-10-26 - Excel — JUAN URSUL SOLANES

Archivo Inicio Insertar Dibujar Diseño de página Fórmulas Datos Revisar Vista ¿Qué desea hacer? Compartir

DISTR.NORM... =DISTR.NORM.N(C5;mu;sigm;FALSO)

	A	B	C	D	E
2	mu	2			
3	varianza	0.36			
4	desv_est	0.6			
5			-1	m;FALSO)	2.86652E-07
6			-0.9	5.62287E-06	6.71328E-07
7			-0.8	1.24101E-05	1.53063E-06
8			-0.7	2.66396E-05	3.39767E-06
9			-0.6	5.56181E-05	7.34342E-06
10			-0.5	0.000112938	1.54543E-05
11			-0.4	0.00022305	3.16712E-05
12			-0.3	0.000428451	6.32092E-05
13			-0.2	0.000800451	0.000122866
14			-0.1	0.001454471	0.000232629
15			0	0.002570465	0.00042906
16			0.1	0.004418293	0.000770985
17			0.2	0.007386414	0.001349898
18			0.3	0.012010166	0.002303266
19			0.4	0.01899331	0.003830381
20			0.5	0.029213834	0.006209665
21			0.6	0.043703148	0.009815329
22			0.7	0.063587706	0.01513014
23			0.8	0.089984944	0.022750132
24			0.9	0.123851939	0.033376508
25			1	0.165795231	0.047790352
26			1.1	0.215862659	0.066807201
27			1.2	0.273350124	0.09121122
28			1.3	0.336664476	0.121672505
29			1.4	0.403284541	0.158655254
30			1.5	0.469853126	0.202328381
31			1.6	0.532413343	0.252492538
32			1.7	0.586775545	0.308537539
33			1.8	0.628972046	0.36944134
34			1.9	0.65573286	0.433816167
35			2	0.664903801	0.5
36			2.1	0.65573286	0.566183833

distribucion normal

Modificar

Pregúntame cualquier cosa — ESP 18:43 26/10/2016