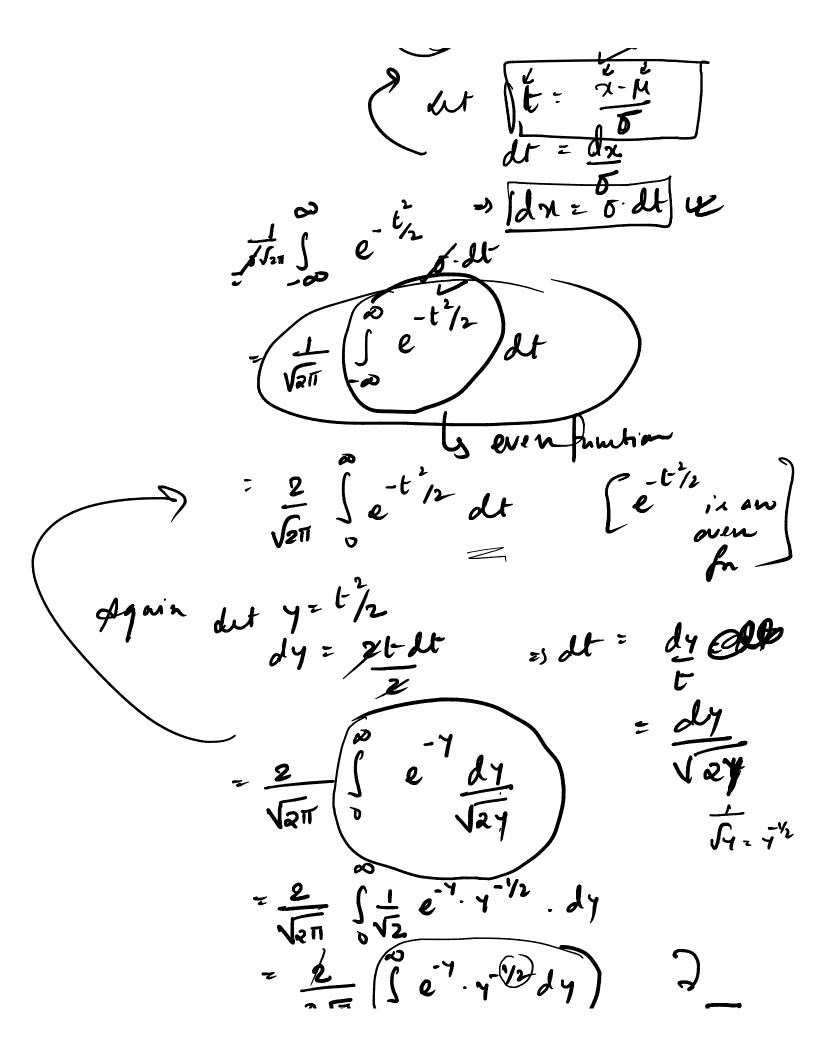
15 January 2024 08:16 PM

Normal Distribution - distribution of a continuous grandom van ably parametra (pdf). Copulation mean pe and " s.d 5) X is a court v.v with μ and δ normal dy bahatim

Proof

(i) for all values of π , fin) >, o

(ii) If $(\pi) d\pi = \int_{-\infty}^{\infty} \frac{1}{2^{-N}} \left(\frac{(n-N)}{2}\right)^{-N} d\pi$



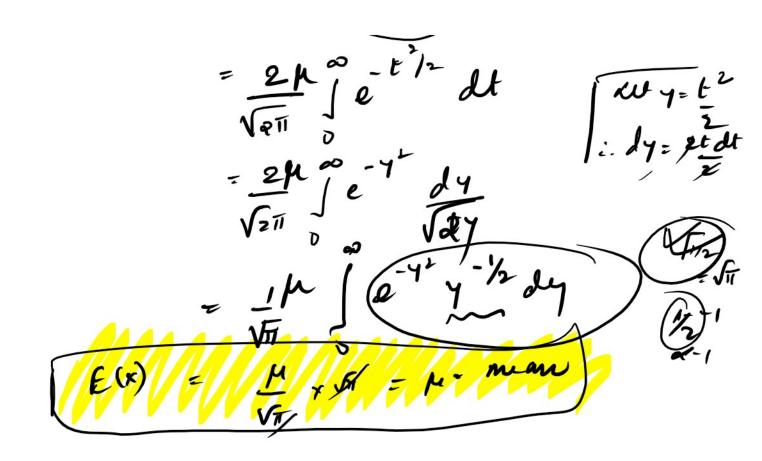
$$\frac{2}{2\sqrt{\pi}} \left(\int_{0}^{2\sqrt{2}} \sqrt{y^{-1/2}} dy \right)$$

$$= \frac{1}{\sqrt{\pi}} \left(\int_{0}^{2\sqrt{2}} \sqrt{y^{-1/2}} dy \right)$$

$$= \frac{1}{\sqrt{\pi}} \times \sqrt{\pi} = 1 \quad \text{(proved)}$$

$$= \int_{0}^{2\pi} \sqrt{x \cdot f(x)} dx$$

$$= \int_{0}^{2\pi} \sqrt{$$



Variance of X

Raw moments
$$\rightarrow$$
 deviation from any arbitrary one that (A)

 $N=1 \rightarrow \mu_1'=1 \times (\pi i - A)$
 $M=1 \rightarrow \mu_2'=1 \times (\pi i - A)^2$
 $M=1 \rightarrow \mu_3'=1 \times (\pi i - A)^2$
 $M=1 \rightarrow \mu_4=1 \times (\pi i - \pi)^2$
 $M=1 \rightarrow \mu_4=1 \times (\pi i - \pi)^2$

Properties

$$h = 2 \Rightarrow \mu_1 = \frac{1}{n} \mathbb{E}(n_1 - n_1)^2 = \frac{1}{n}$$

The second second

M : dn

$$H = \frac{dn}{\sigma}$$

$$= \int_{-\infty}^{\infty} (\sigma t)^{2NH} \int_{-\infty}^{\infty} e^{-t^{2}/2} f dt$$

$$= \int_{-\infty}^{2\pi H} \int_{-\infty}^{\infty} (\sigma t)^{2NH} \int_{-\infty}^{\infty} e^{-t^{2}/2} f dt$$

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.:
$$\mu_1 = 0$$
 , $\mu_3 = 0$, $\mu_5 = 0$...

All the even or der central moment ly

$$\mu_{2n} = E(x - \mu)^{2n} = \int_{(n-\mu)}^{\infty} (n-\mu)f(n)dx$$

$$\mu_{2n} = \int_{\sqrt{2\pi}}^{\infty} \int_{-\infty}^{\infty} (x-\mu)^{2n} e^{-\frac{1}{2}(\frac{n+\mu}{\sigma})^{2n}} dx$$

$$= \int_{\sqrt{2\pi}}^{\infty} \int_{-\infty}^{\infty} (\epsilon \cdot \sigma)^{2n} e^{-\frac{1}{2}\epsilon^{2}} dt$$

$$= \int_{-\infty}^{2\pi} \int_{-\infty}^{\infty} t^{2n} e^{-\frac{1}{2}\epsilon^{2}} dt$$

$$\frac{1}{\sqrt{2}} \int_{0}^{2} \frac{1}{\sqrt{2}} e^{-\frac{1}{2}} dt$$

$$= \frac{1}{\sqrt{2}} \int_{0}$$

$$|H_{2}| = \int_{-2}^{2\pi} (2\pi - 1) (2\pi - 3) \cdots 3 \cdot 1 \cdot |K|$$

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5 5211 F H 5 /211 e⁻¹ PIN)> 0 m Itm)dx= 9