Lecture on Review of Random Variables

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Student		Grad/Under	Programming
Sam Chen	1	Un	R, python
Shouyu Chen	2	un	c++
Cris Clark	1	Grad	No, windows
Joshep	2	Grad	R, Java, Matlab, Mac
Colin	3	under	R
Bai	3	Under	c++, R, python, Mac
Sin	3 4	Grad	R, SQL, Windows
kailun	2	Grad	New,
Diago	4	Un	R, c++, Mac
Yayun	2	un	(——), Mac
Rebeca	3	Grad	c++
Caillin	3		
Joshep	1		Java
Shuang	4	MS	c++, Python, windows
Qimu Yuan	1	und	c++, C
chimu	4		

PDF $f(y)$ = { ce^{-2y} , $y \geq 0$; 0 , $y < 0$ }

support

$$\int_{-\infty}^{\infty} f(y) = \int_{-\infty}^{0} f(y) + \int_{0}^{\infty} f(y)$$

$$= \int_{-\infty}^{0} 0 \, dy + \int_{0}^{\infty} ce^{-2y} dy$$

$\int_0$

$$f(y) = \frac{1}{\sqrt{2\pi}} e^{-x^2/2}$$

$-\infty < x < \infty$

$$\int_{-\infty}^{\infty} f(y) dy$$

$$f(y) = \begin{cases} \frac{1}{3} & 2 \le y \le 5 \\ 0 & \text{elsewhere} \end{cases}$$

$$\int_{-\infty}^{\infty} f(y)\,dy \approx \int_{2}^{5}$$

$$f(x,y) = c\,e^{x+y}$$

$$= \underbrace{c \cdot e^{x}}_{g(x)} \underbrace{e^{y}}_{h(y)} \quad \text{independent}$$

$$f(x,y) = c\,(x-y)^2 \quad \text{dependent}$$

$$f(x,y) = \begin{cases} c\,e^{-x} & 0<x<1,\ 0<y<2 \\ & 0 \le x < y \le 1 \\ 0 & \text{otherwise} \end{cases}$$

$$\underbrace{c\,e^{-x}}_{g(x)} \cdot \underbrace{1_y}_{h(y)}$$

$f(y_1, y_2) = 3y_1$ $\quad 0 \le y_2 \le y_1 \le 1$

$P(0 \le y_1 \le 0.5,\ 0.25 \le y_2)$

$$\int_{0.25}^{0.5} \int_{y_2=0.25}^{y_1} 3y_1 \, dy_2 \, dy_1$$