

ANS ①
31
9 Jul 18

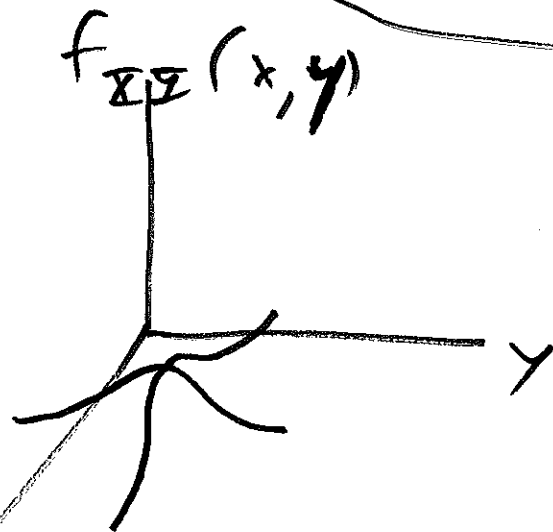
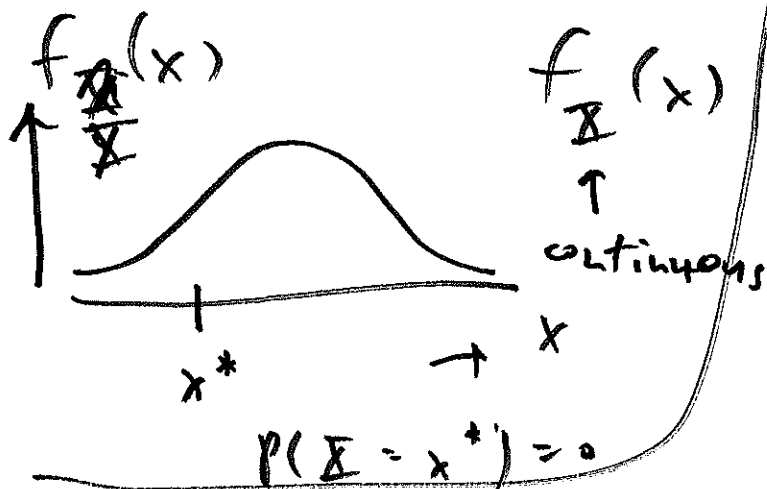
DS sec. 3.4-3.6

THAT I now due by 11.59 pm
Tue 10 Jul 18

extra DD

OH the after section
10-11 AM

this bivariate,
time: joint,
next marginal,
time: conditional
distributions



(9.56)

$$\int_{-1}^1 \frac{21}{8} x^2 (1 - x^4) dx$$

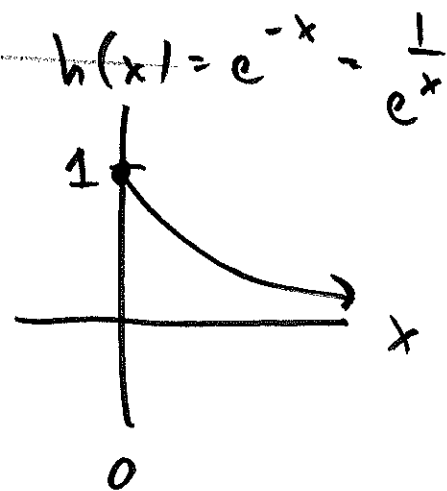
$$= \frac{21}{8} \left[\int_{-1}^1 x^2 dx - \int_{-1}^1 x^6 dx \right]$$

$$= \frac{21}{8} \left[\frac{x^3}{3} \Big|_{-1}^1 - \frac{x^7}{7} \Big|_{-1}^1 \right]$$

$$= \frac{21}{8} \left\{ \left[\frac{1}{3} - \left(-\frac{1}{2}\right) \right] - \left[\frac{1}{7} - \left(-\frac{1}{7}\right) \right] \right\} \quad (2)$$

$$= \frac{21}{8} \left(\frac{2}{3} - \frac{2}{7} \right) = \frac{21}{8} \left(\frac{14 - 6}{21} \right) = 1$$

$$\int_0^1 \frac{7}{2} y^{\frac{5}{2}} dy = 1$$



(10.53)

Quiz 3

$$Y = \begin{cases} 1 & \text{if } Y \text{ is } \textcircled{3} \\ 0 & \text{if } Y \text{ is } N \end{cases}$$

↑ (MLP)
outcome

$$X = \begin{cases} 1 & \text{if } F \\ 0 & \text{if } M \end{cases}$$

↑ gender
"treatment"

output

$$S' = \{(x, y) : f_{X,Y}(x, y) > 0\}$$

$P(X=0 \text{ and } Y=0)$
if $(x, y) = (0, 0)$

$$f_{X,Y}(x, y) = \begin{cases} \frac{5}{106} & (0, 0) \\ \frac{52}{106} & (0, 1) \\ \frac{20}{106} & (1, 0) \\ \frac{29}{106} & (1, 1) \end{cases}$$

$$f_X(x) = \sum_{\text{all } y} f_{X,Y}(x, y)$$

$$= f_{X,Y}(x, 0) + f_{X,Y}(x, 1)$$

$$= \begin{cases} \frac{5}{106} + \frac{52}{106} = \frac{57}{106} & \text{for } x=0 \\ \frac{20}{106} + \frac{29}{106} = \frac{49}{106} & 1 \end{cases}$$

similarly $f_I(y) = \sum_{\text{all } x} f_{II}(x, y)$ (4)

$$f_{II}(y|x) = \begin{cases} 5/57 & (x,y) = (0,0) \\ 54/57 & (0,1) \\ \frac{20}{49} & (1,0) \\ \frac{29}{49} & (1,1) \end{cases}$$

$$= \frac{f_{II}(x,y)}{f_I(x)} = \frac{\frac{5}{106}}{\frac{57}{106}} = \frac{5}{57}$$