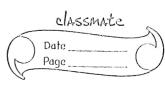
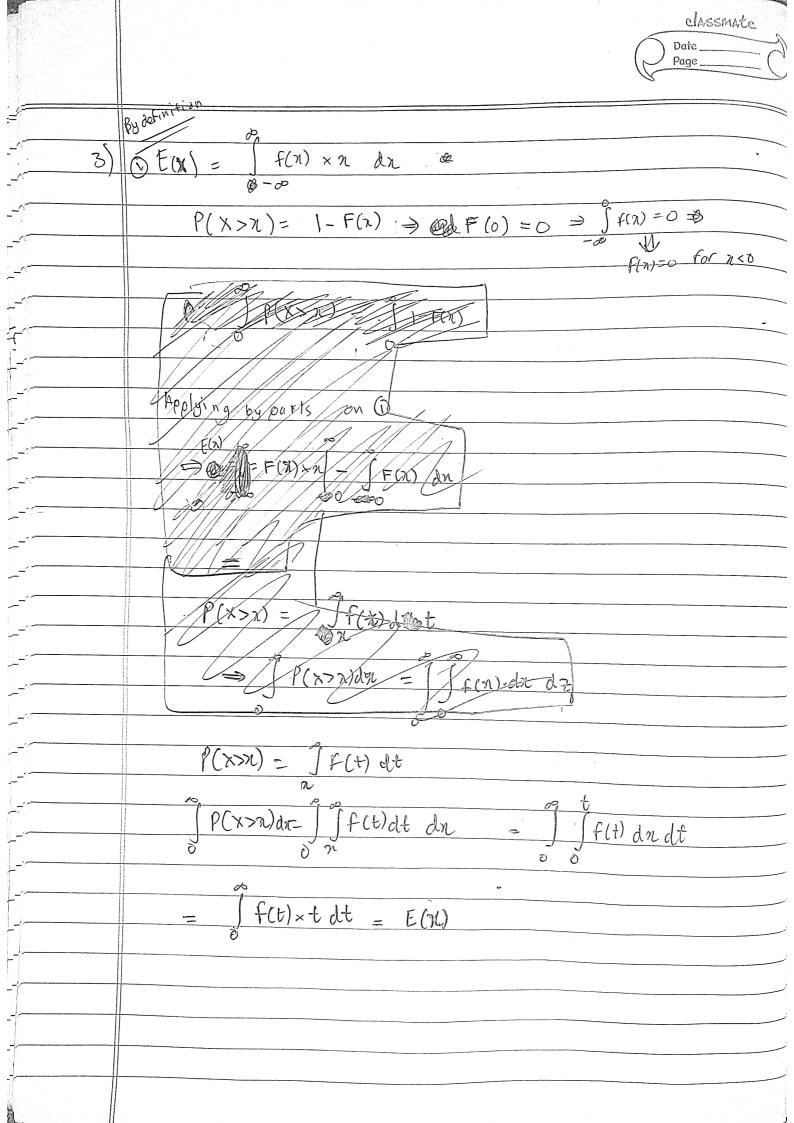
		Class Date Page	mate 3
		4	
	We want.		
- A	O = P(x=n x+y=h) $Csille(x+y)$		
	P(X+y=n)		
	10 to V		
For denomi	PRARAWAY POF of X+Y & e X+H OU		
(-^-	where u= nty		
_^	$\mathbb{D} \left(\begin{array}{c} P(X+Y) = N \end{array} \right) = e^{X+H} \frac{(X+H)^{N}}{N!}$		
- For numerator	$P(X=n \ n \ Y=n-n) = \left(e^{\frac{1}{n}} \ \frac{n}{n!}\right) \times \left(e^{-\frac{n}{n}} \ \frac{n-n}{(n-n)!}\right)$		
_^^	$\frac{3}{3} = e^{-\lambda + H} \sqrt{\frac{n}{\mu}} \frac{n - n}{n!(n - n)!}$		
-7 -7 -4	· Sustitute into		
- 1 - 1 - 1	2 1 1 1 1 2 1 1 1 2 1		
	$n!(n-n)!$ $e^{-\lambda n}(\lambda+\mu)^n$		
	$= \binom{n}{n} \left(\frac{\lambda}{\lambda + 1t} \right)^n \left(\frac{\lambda}{\lambda + t} \right)^{n-n}$		
	=		



2)	By definition: sequence In -c if DED
	$\frac{\lim_{N\to\infty} P(X_n-c <\varepsilon)=1}{\sup_{N\to\infty} P(X_n-c <\varepsilon)=1}$ for all $\varepsilon > 6$
	Suppose - We claim that sequence converges to C=0
<i></i>	$P(X_n \otimes < E) = \begin{cases} 0 & \text{if } 0 < 0 < \frac{1}{n^2} \\ \frac{1}{n^2} & \text{if } 0 < 0 < \frac{1}{n} < \frac{1}{n^2} \end{cases}$ $\frac{1}{n^2} + \frac{1}{n^2} $
	$\lim_{N\to\infty} P($
	= { if & \epsilon \
	: Dequence convejes to oin, probability
	$E(X-Q ^2) = E(X_n ^2)$ $= \lim_{n \to \infty} \frac{1}{n} \times (1-\frac{1}{n^2}) + n^2 \times (\mathbb{P}^{\frac{1}{n^2}})$
	$\frac{1}{N^2} \frac{1}{N^4} + \frac{1}{N^2} \frac{1}{N^2} \frac{1}{N^2} = 1 \pm 0$ $\frac{1}{N^2} \frac{1}{N^4} + \frac{1}{N^2} \frac{1}{N^2} \frac{1}{N^2} = 1 \pm 0$ $\frac{1}{N^2} \frac{1}{N^2} + \frac{1}{N^2} \frac{1}{N^2} \frac{1}{N^2} = 1 \pm 0$ $\frac{1}{N^2} \frac{1}{N^2} + \frac{1}{N^2} \frac{1}{N^2} = 1 \pm 0$



$$D_{KL}(PIIA) = E_{0}\left[\frac{\log \frac{1}{1}}{\sqrt{2\pi E}} - \frac{(\ell-H)^{2}}{2E} - \log \left(\frac{1}{\sqrt{2\pi L}}\right) + \left(\frac{2\ell-m}{2L}\right)^{2}\right]$$

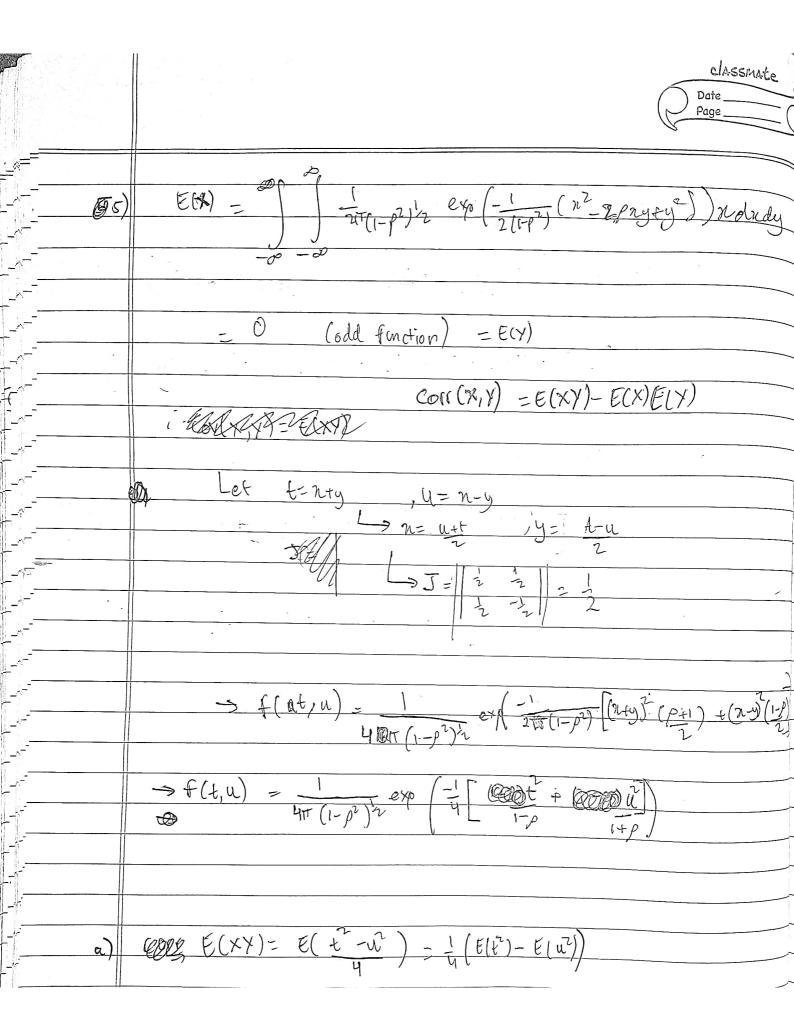
$$= E \left(\frac{1}{\lambda^2} \left(\frac{1}{2L} - \frac{1}{2e} \right) + 2\lambda \left(\frac{H}{E} - \frac{m^2}{L} \right) + \frac{m^2}{2L} - \frac{H^2}{2E} + \frac{1}{2} \log \left(\frac{L}{E} \right) \right)$$

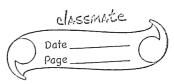
$$= \bigoplus_{n=1}^{\infty} \left[\left(\frac{L^{n} + \mu^{2}}{2L} \right) \left[\frac{1}{2L} - \frac{1}{2E} \right] + \frac{\mu}{2L} \left(\frac{\mu}{E} - \frac{\mu}{L} \right) + \frac{\mu^{2}}{2L} - \frac{\mu^{2}}{2E} + \frac{1}{2} \log \left(\frac{L}{E} \right) \right]$$

$$= \frac{1}{2} \frac{1}{2^{\frac{1}{2}}} \frac{1}{2^{\frac{1}{2}}} - \frac{1}{2^{\frac{1}{2}}} + \frac{1}{2^{\frac{1}{2}}} \frac{1}{2^{\frac{1}{2}}} + \frac{1}{2^{\frac{1}{2}}} \frac{\log(\frac{1}{2})}{\log(\frac{1}{2})}$$

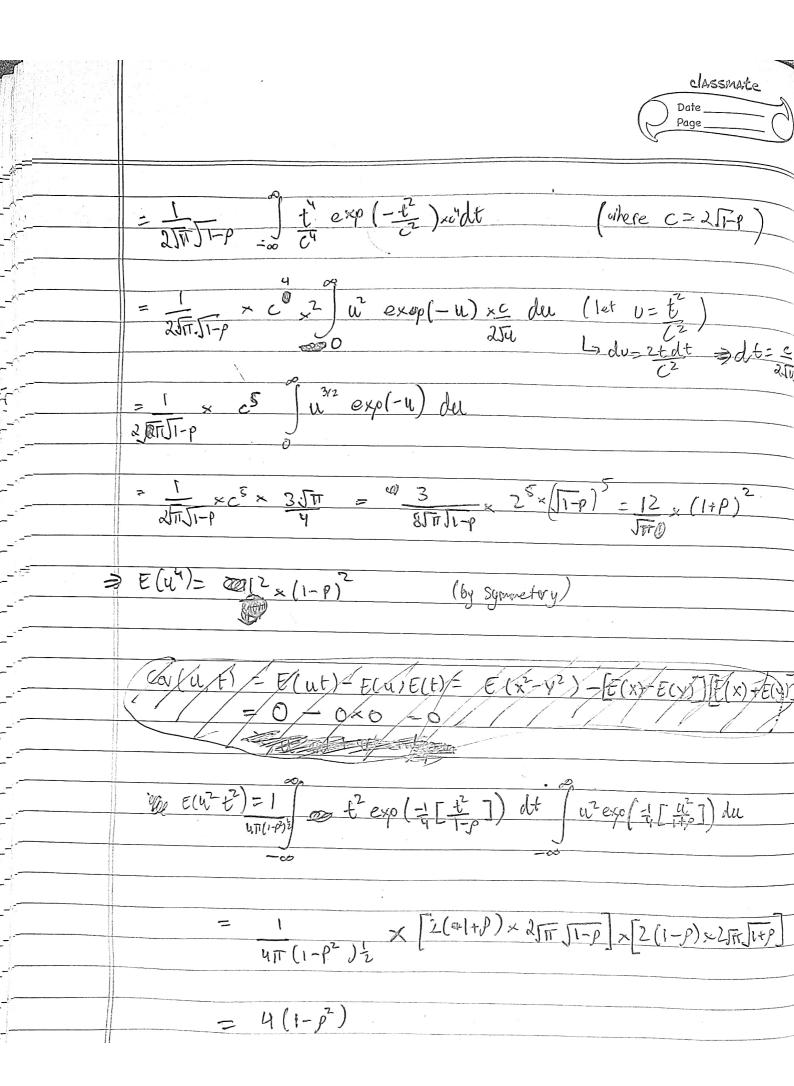
$$= \frac{1}{2} - \frac{L}{2E} + \frac{H^{2}}{2L} - \frac{Hm}{1} + \frac{m^{2}}{2L} + \frac{1}{2} \log \left(\frac{L}{E}\right)$$

$$=\frac{1}{2}-\frac{L}{2E}+\frac{1}{2}(\lambda-m)^{2}+\frac{1}{2}\log(\frac{L}{E})$$





$$E(t^{2}) = \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}}^{1/\sqrt{1-\rho}} \int_{1/\sqrt{1-\rho}}^{1/\sqrt{1$$



 $E(x^{2}y^{2}) = \frac{1}{16} \left[\frac{12}{2} \times (1+p)^{2} + \frac{12}{12} (1-p)^{2} - 2 \times 4(1-p^{2})^{\frac{1}{2}} \right]$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = 1 + 2p^{2}$ $= \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] = \frac{1}{16} \left[24 + 2p^{2} \right] = \frac{1}{16} \left[24 + 24p^{2} - 8 + 8p^{2} \right] =$

Let
$$X_i \sim C_{invert}(N,3)$$
 then $M_{GF_{X_i}}(t) = (1-nt)^{-3}$

$$define \ \overline{X} = X_1 + X_2 \dots X_K$$

$$K$$

$$M_{GF_{X_i}}(t) = \overline{E} \left[\exp\left(\frac{t_1 x_1 + x_2 \dots x_K}{K} \right) \right]$$

$$= \overline{E} \left[\exp\left(\frac{t_1 x_1}{K} \right)_{X_i} \exp\left(\frac{t_1 x_2}{K} \right)_{X_i} \dots \exp\left(\frac{t_1 x_K}{K} \right) \right]$$

$$= \overline{E} \left[\exp\left(\frac{t_1 x_1}{K} \right)_{X_i} \right] \times \left[\frac{m_F}{K} \left(\frac{t_1}{K} \right)_{X_i} \right]$$

$$= \left[\frac{1-nt}{K} \right]_{X_i} \times \left[\frac{m_F}{K} \left(\frac{t_1}{K} \right)_{X_i} \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{1-nt}{K} \right]_{X_i} \times \left[\frac{n^2 t_1^2}{K} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right) \times \frac{1}{2} \right] \times \left[\frac{n^2 t_1^2}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right) \times \frac{1}{2} \right] \times \left[\frac{n^2 t_1^2}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right)_{X_i} \times \frac{1}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right)_{X_i} \times \frac{1}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right)_{X_i} \times \frac{1}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right)_{X_i} \times \frac{1}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \left(\frac{-3k^2}{2} \right) \right]$$

$$= \frac{1}{2} \left[\frac{m_F}{K} \left(\frac{1-nt}{K} \right)_{X_i} \times \frac{1}{2} \times \left(\frac{-3k^2}{2} \right) \left(\frac$$