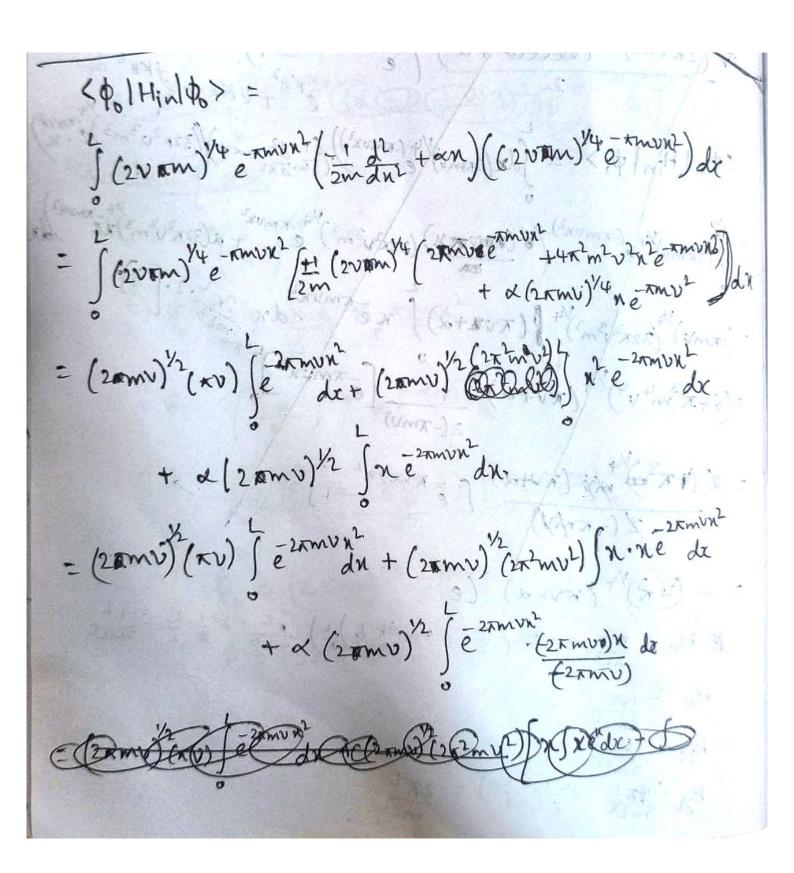
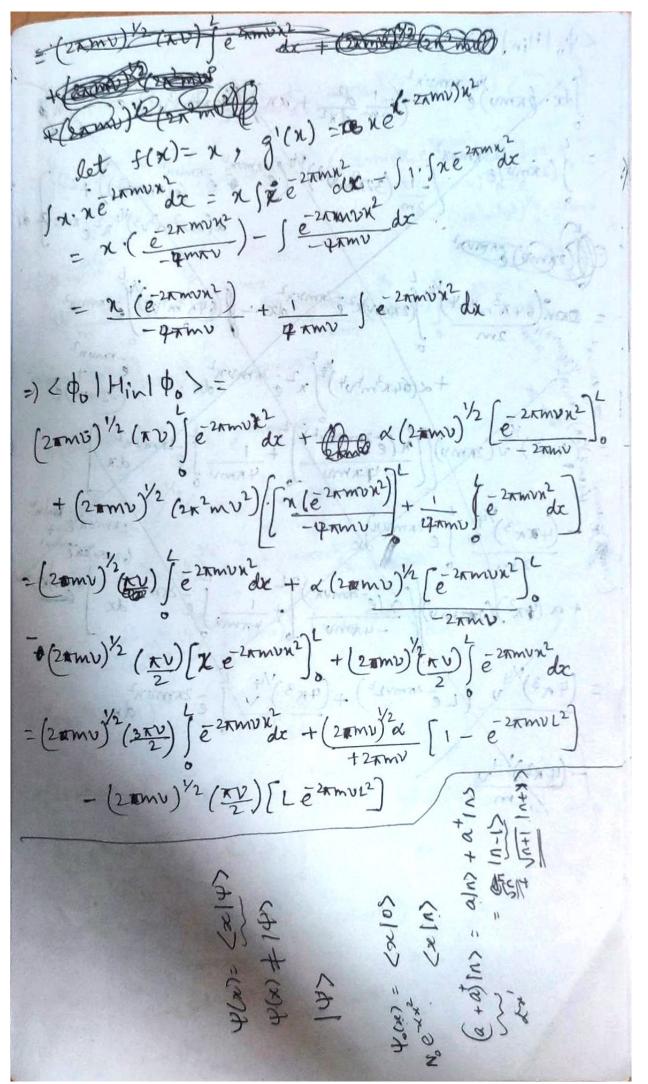
WOLD & = 2KVM Ψ<sub>ν</sub> = \( e - \an\) ( \( c\_0 + c\_0 \) \( \alpha + \cdot \) \( \left( \alpha \) \) \\ \( e^{-\alpha \cho \alpha \} \) \( \left( \alpha \) \\ \( \alpha \) \\\ \( \alpha \) \\ \( \alpha \) \\ \( \alpha \) \\ \( \alpha \) \\\ \( \alpha \) \\\ \( \alpha \) \\ \( \alpha \) \\\ \( \alpha \) \\\\ \( \alpha \) \\\ \( \alpha \) \ \$ = = ( Gn+ (3 N3) Po = € € TWX ( CO € 6000) normalizing 514,12 dx = 1 Poz O(X) Yy exp? =) \$ = (2 vm/4 = xvmu2 φ, = (423) /4 a e α 1/2 n =) \$\phi\_1 = \left(\frac{4(8\times^2\gamma^3\mathref{m}^3)}{\times^2}\right)^4 = \times^{\times\times\tau}\times^{\times} =) \$ = (2 ving) 1/4 = mnvx2 

1





LA Hin 10, > = Jdn (2mmv) 4 e mon2 (- 1 d2 + xn) (132x2 m3v3) 4 mvx2 = [ (32x2m3y3) 4 (-2xmb) = + (-2xmb) 2x = xmb) = (64x2m+4) (2xmu) [x = 2xmux² dx + (64x2m+4) (4xmu) [x = 2xmux² dx +(64 x 2m 4 v 4) 20m v) 2 J n3 = 20m v x 2 doc = (64x2m4v4) /4 (6xmv) [x=2xmvx2dx. + (6 42 m4v4) 4 x 5 x2 = 2xmon2 du total + (64 x2m4v4) (2xmv) 2 / x3=2xmvx2 dx = (64x2m424) 14 (6xmv) [ e-2xmvx2] + €(64x2m4v4) x (0000 x (=2xmvx2) + 1 (=xmv) + 1 (=xmv) du + (64 x 2m 4 v 4) (4 x 2m 2 v 2) [ n 3 = 2 x m v n 2 d n = (642m4v4)24 (6\*mv) (1-e^2kmvL2) + (64 x 2 m 4 v 4) x (-L e 2 x m v 2 2 + 5 e 2 x m v x 2 d n) + (64x2m4v4) (4x2m2v2) Je2kmvx2x3dx

4

$$\int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx = \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$\int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx = \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$= \chi^{2} \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx - \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$= \chi^{2} \left[ \frac{e^{\frac{2\pi mu}{2}}}{e^{\frac{2\pi mu}{2}}} \right] - \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$= \chi^{2} \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) - \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$= \chi^{2} \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) - \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

$$= \chi^{2} \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) + \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} dx$$

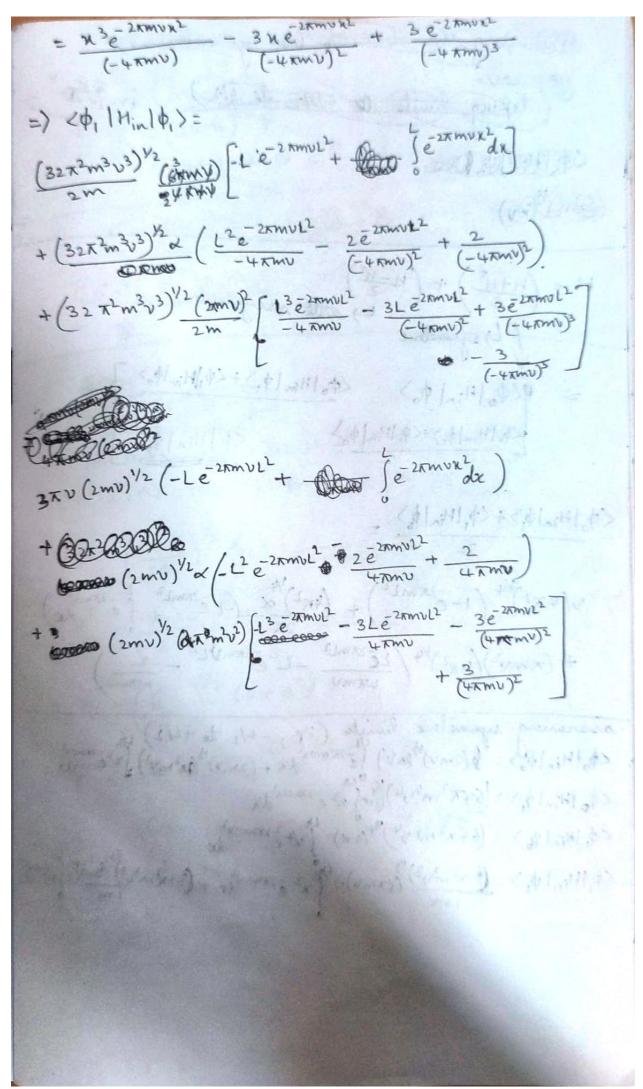
$$= \chi^{2} \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) - \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} + \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) + \int_{0}^{\infty} e^{\frac{2\pi mu}{2}} e^{\frac{2\pi mu}{2}} dx$$

$$= \frac{2\pi mu}{2\pi mu} \left( \frac{(4\pi mu)^{2}}{e^{\frac{2\pi mu}{2}}} \right) \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) + \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) + \left( \frac{e^{2\pi mu}}{e^{2\pi mu}} \right) \left( \frac{e^{2\pi mu}}{e^{\frac{2\pi mu}{2}}} \right) + \left($$

20, 1Hin 100> = Jdx. (32x2v3m3)4 x. exmunt (=1 d2 + dm). ((2wm) 4 - xmv x2) + & (2000) /4 x. exmuk2 = (64x 2 m4,4) (2xmv) x e dx + (64x2m4v4) (4x2m2v2) x 2 2xmvx2 dx +(64x2m+v+) 2/2 x2 = 2xmvx2 dx = (64x2m4v4)/4(2xmv) [ = 2xmvn2] + (647 m/v4)/4(4x2m2v2) [-x2=2xmox2+2=2xmvx2] 0 + (64 x2m+v+) 14 c ( 2 ( = 2 KM V x2) + 1 4 KM V = 2 KM V X2 d x) L = 2mv (4x3) 14 (2xmv) (1- e2xmv22) + + 2mv(4x8)1/4 (-Le-2xmv12+ fe-2xmv12) = 30 (4x2) 4 ( 1-E-2xmvl2) + 18 (4x2) 14 (xmv2) (2 = 2xmvL2 - L2 = 2xmvL2 - 2) + (4x3) 14 2 (-L = 2xmvL2 + f=2xmvx2 dx)

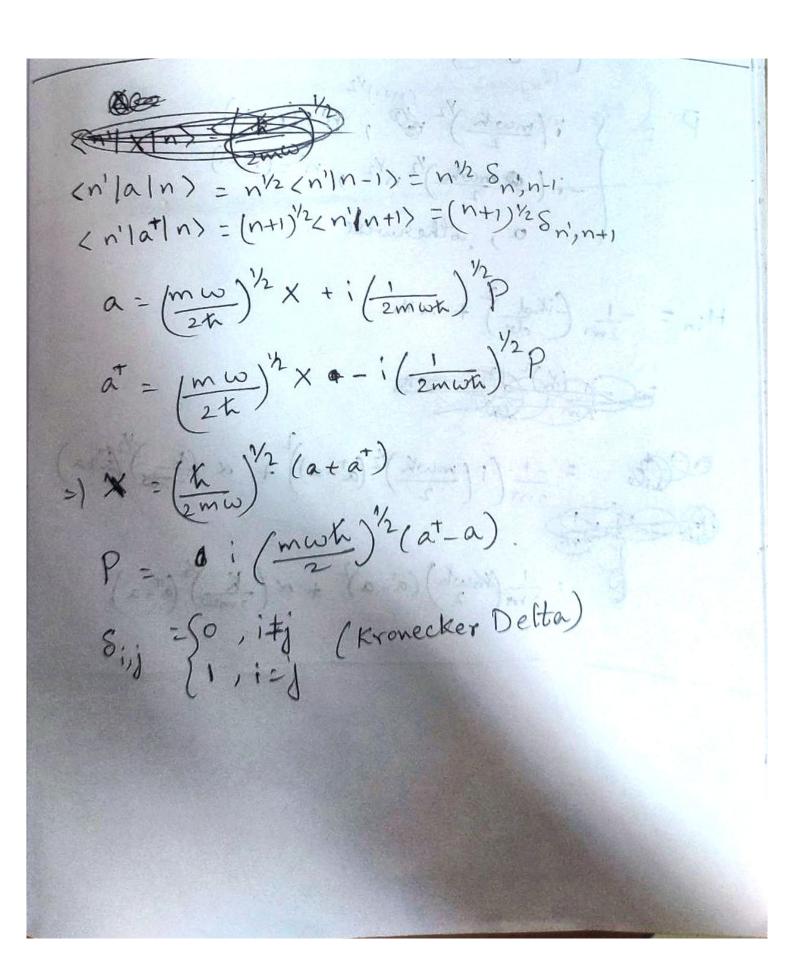
(4, 1 Hinly) Jdn. (32 xm3) 24 = xmv n² [-1 d² + xm) ((32x2m3v3) 2. exmon) = Sala (32x2m33) 4. = xmun2 (32x2m3v3) ((2xmv) x = xmun2 + (-2xmv) 2x = xmun2 + (-2xmv)2x = xmun2  $= \frac{(32\pi^{2}m^{3}v^{3})^{1/2}}{2m} (6\pi m v) \int_{0}^{\infty} n^{2}e^{-2\pi m v x^{2}dx} dx + e^{-2\pi m^{2}v^{2}} dx$ (32 x2m3v3) 1/2 (2xmv)2 [x4e-2xmvx2 det (32x2m3v3) x2 x S x3 e -22mmun2 de = (32x2m3v3)/2 (6xmv) [x(e2xmvx2) + 1 [e2xmvx2] + (32 x2m3v3)/2 ( 12(=2xmvx2) - 2 e2xmvx2 - 4xmv)2 +(32x2m3v3)/2 (2xmv)2 / x4 = 2xmvn2 Jut e 2kmoul de = ( n3 nº e 2kmoul du ) ( man) ( man) = x3 x e-2 mon - 53x2 (5x e 2 mon dx) dx = 23 e-2 xmun2 - (3 x2 e-2 xmun2 dx = x3 e 2xmux2 - 3 (x x e 2xmux) / x x e 2xmux2 de (-4 RMV) - 3 (2) x = 2 x m v x 2 - Sift = 2 x m v x dt) = N3 = 2 KMUN2 - 3 (X = 2 KMUN2 - 2 KMUN2) (-4 KMU) (-4 KMU) - (4 KMU) (4 KMU)

7



< \$ 14, 14, > + < \$ 14, 14, 16> =

assuming symmetric limits (i.e., -  $\frac{1}{2}$  to +  $\frac{1}{2}$ )  $\frac{1}{2}$   $\frac{1}{2}$ 



$$P = \begin{cases} (\frac{1}{2} + \frac{1}{2})^{1/2}, & n' = (n-1) \\ 0, & n' \neq (n-1) \\ 0, & n' \neq (n+1) \end{cases}$$

$$= \begin{cases} (\frac{1}{2} + \frac{1}{2})^{1/2}, & n' = (n-1) \\ (\frac{1}{2} + \frac{1}{2})^{1/2}, & n' = (n+1) \\ 0, & \text{otherwise} \end{cases}$$

$$P = \begin{cases} i \left(\frac{m\omega k}{2}\right)^{1/2}, & n' = (n+1) \\ -i \left(\frac{m\omega k}{2}\right)^{1/2}, & n' = (n+1) \\ -i \left(\frac{m\omega k}{2}\right)^{1/2}, & n' = (n-1) \\ 0, & \text{otherwise} \end{cases}$$

$$H_{in} = -\frac{1}{2m} \left(i \frac{m\omega k}{2}\right)^{1/2}, & n' = (n-1) \\ 0, & \text{otherwise} \end{cases}$$

$$= -\frac{1}{2m} \left(i \frac{m\omega k}{2}\right)^{1/2} \left(a^{1} - a\right)^{1/2} + \alpha \left(\frac{k}{2m\omega}\right)^{1/2} \left(a^{1/2} + a\right)^{1/2} \right)$$

$$= -\frac{1}{2m} \left(i \frac{m\omega k}{2}\right)^{1/2} \left(a^{1/2} - a\right)^{1/2} + \alpha \left(\frac{k}{2m\omega}\right)^{1/2} \left(a^{1/2} - a\right)^{1/2} \right)$$