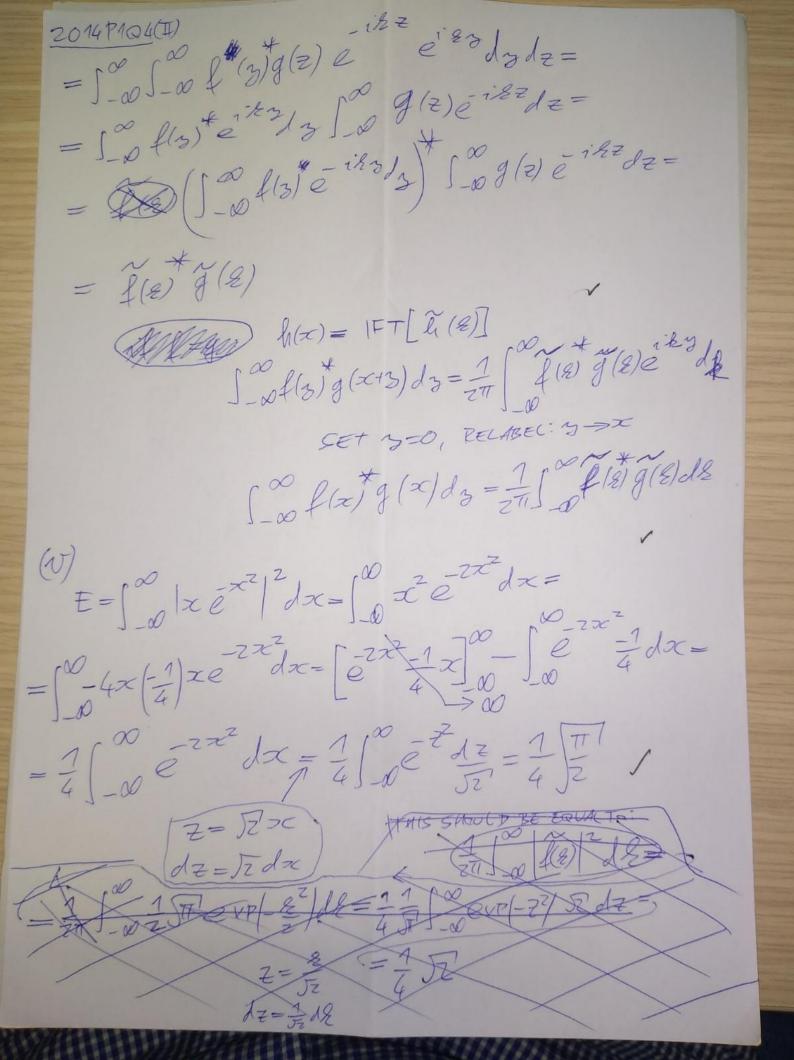
$\frac{2014 P104(I)}{(i) f(x) = \frac{1}{711} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \frac{i \frac{2}{8} x}{\int_{-\infty}^{\infty} \frac{1}{8} x} dx$ (ii)  $\tilde{g}(z) = \int_{-\infty}^{\infty} x^n f(x) \tilde{e}^{-iz} dx = i^n \int_{0}^{\infty} (-ix)^n f(x) \tilde{e}^{-iz} dx = i^n \int_{0}^{\infty}$  $= i \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \left[ l(x)e^{-i\beta_{x}x} \right] dx = i \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} l(x)e^{-i\beta_{x}x} dx =$ matter (HOW TO DO THIS BETTER?)  $=i^{n}\frac{d^{n}}{dk^{n}}f(\xi)$ a if fly-FT1 (iii)  $\chi(\mathbf{k}) = i \frac{d}{d\mathbf{k}} e^{-x^2}$  $e^{-2c^2} = 4 i \frac{d}{dz} \int_{-\infty}^{\infty} e^{-2c^2} e^{-izz} dz =$  $z = x + i \xi - 3 dz = dz$  $= i\frac{d}{dz}\int_{-\infty}^{\infty} e^{z^2} e^{z^2} dz =$  $= \frac{1}{\sqrt{2}} \int_{-\infty}^{\infty} e^{-\frac{\pi}{4}} dx = \frac{2}{\sqrt{2}} =$  $h(x) = \int_{-\infty}^{\infty} f(x)^{*} g(x + 3) dy$ N(2) = 500 500 f(3) y (x+3) dz e 12x = 5-05-0 f\*(8)8(x+3) e 12xd3dx =



2014 PIQ 4(II) 1 1 0 1 (2) d2 = 1 1 - 0 (1 St e = 2) d2 =  $-\frac{1}{8}\int_{-\infty}^{\infty} e^{-\frac{2^{2}}{2}} d2 = \frac{1}{8}\int_{-\infty}^{\infty} e^{-\frac{2^{2}}{3}} \sqrt{2} dz = \frac{\sqrt{2}}{8} =$ 7= 8 I'm St sur file. dz=1 de (WHICH PATET) = 52 5 = 1 = 1 = 1 YES, THERE IS CONSISTENCY WITH

PARSEVAL'S THEOREM