

2014-12-17

$$\begin{aligned} \Rightarrow e^{-t^2/4} &= e^{-(\frac{t}{2})^2/2} \xrightarrow{\xi} \sqrt{2\pi} \sqrt{2} e^{-(\sqrt{2}\xi)^2/2} = \\ &= 2\sqrt{\pi} e^{-\xi^2} \end{aligned}$$

$$\hat{f}(\xi) \sqrt{2\pi} e^{-\xi^2/2} = 2\sqrt{\pi} e^{-\xi^2}$$

$$\Rightarrow \hat{f}(\xi) = \sqrt{2} e^{-\xi^2/2} = \frac{1}{\sqrt{\pi}} \sqrt{2\pi} e^{-\xi^2/2}$$

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