$$\begin{array}{ccccc} \hat{A} & \hat{B} & = & \hat{A}\hat{B} \\ \downarrow & \downarrow & & \downarrow \\ D(\hat{A}) & D(\hat{A}) & = & D(\hat{A})D(\hat{B}) \end{array}$$

$$(ye^{-\frac{x^2}{2}})' = e^{-\frac{x^2}{2}}(y' - xy)$$

$$y' - xy = \frac{1}{2\sqrt{x}}e^{\frac{x^2}{2}}$$

两边乘以$e^{-\frac{x^2}{2}}$

$$e^{-\frac{x^2}{2}}(y' - xy) = (ye^{-\frac{x^2}{2}})' = \frac{1}{2\sqrt{x}}$$

积分因子法

$$e^{\int a(x)\mathrm{d}x}(y' + a(x)y) = (ye^{\int a(x)\mathrm{d}x})'$$