??

$$\left[-\frac{\hbar^2}{2m}\frac{\mathrm{d}^2\psi}{\mathrm{d}x^2}+V(x)\right]\psi(x)=E\psi(x)$$

(1)

??

??

$\hat{D}$

$xf(x)\hat{D}f(x)\hat{D}f(x)=$

$f'(x)\hat{D}\left(x^2+3\mathrm{e}^{2x}\right)=$

$2x+$

$6\mathrm{e}^{2x}\hat{3}$

$\hat{3}\left(x^2+3\mathrm{e}^{x}\right)=$

$3x^2+$

$9\mathrm{e}^{x}$

x^2+

$1\tan\left(x^2+1\right)\hat{A}f(x)g(x)\hat{A}f(x)=$

$g(x)$

$\hat{A}\hat{B}$

$$\left(\hat{A}+\hat{B}\right)f(x)\equiv\hat{A}f(x)+\hat{B}f(x)$$

(2)

$\left(\hat{A}-\hat{B}\right)f(x)\equiv$

$\hat{A}f(x)-$

$\hat{B}f(x)$

$\hat{D}\equiv$

$\mathrm{d}/\mathrm{d}x$

$\left(\hat{D}+\hat{3}\right)\left(x^3-5\right)=$

$\hat{D}\left(x^3-5\right)+$

$\hat{3}\left(x^3-5\right)=$

$3x^2+$

$\left(3x^3-15\right)=$

$3x^3+$

$3x^2-$

15

$\partial^2/\partial x^2+$

$\partial^2/\partial y^2$

$\left(\partial^2/\partial x^2+\partial^2/\partial y^2\right)g(x,y)=$

$\partial^2 g/\partial x^2+$

$\partial^2 g/\partial y^2$

$$\hat{A}\hat{B}f(x)=\hat{A}\left[\hat{B}f(x)\right]$$

(3)

$f(x)\hat{3}\hat{D}f(x)=$

$\hat{3}\left[\hat{D}f(x)\right]=$

$\hat{3}f'(x)=$

$3f'(x)$

$\hat{A}\hat{B}\hat{B}\hat{A}\mathrm{d}/\mathrm{d}x\hat{x}\hat{x}x$

$$\hat{D}\hat{x}f(x)=\frac{\mathrm{d}}{\mathrm{d}x}\left[xf(x)\right]=f(x)+f'(x)=\left(\hat{1}+\hat{x}\hat{D}\right)f(x)$$

(4)

$\hat{x}\hat{D}f(x)=$

$\hat{x}\left[\frac{\mathrm{d}}{\mathrm{d}x}f(x)\right]=$

$xf'(x)$

$\hat{A}\hat{B}\hat{B}\hat{A}$

$f\hat{A}f=$

$\hat{B}f\hat{A}\hat{B}$ **??**

$$\hat{D}\hat{x}=1+\hat{x}\hat{D}$$

(5)

$\hat{1}$ $\hat{0}$

?? $\hat{D}\hat{x}-$

$\hat{x}\hat{D}-$

$1=$

0

$$\hat{A}\left(\hat{B}\hat{C}\right)=\left(\hat{A}\hat{B}\right)\hat{C}$$

(6)

?? $\hat{A}=$

$\mathrm{d}/\mathrm{d}x\hat{B}=$

$\hat{x}\hat{C}=$

??