

#Jenny



Finally I get this ebook, thanks for all these I can get now!

#Rio



Cool! I'am really happy

#Markus Jensen



I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu



wtf this great ebook for free?!

#Che Salsa



My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler



so many fake sites. this is the first one which worked! Many thanks

Applied Quantum Mech. Exam 1.

1. $V(x) = \alpha \delta(x)$ $|x| < \frac{a}{2}$
 $= \infty$ $|x| > \frac{a}{2}$

$-\frac{\hbar^2}{2m} \frac{d^2\psi}{dx^2} + V\psi = E\psi$ with $E > 0$.

where $V=0$. $\frac{d^2\psi}{dx^2} = -\frac{2mE}{\hbar^2}\psi = -k^2\psi$ $\psi(x) = e^{ikx}$
 $k = \frac{2mE}{\hbar^2}$

a) $x < 0$ $\psi_L(x) = Ae^{ikx} + Be^{-ikx}$
 $x > 0$ $\psi_R(x) = Ce^{ikx} + De^{-ikx}$

b) b.c. at $x = \pm \frac{a}{2}$, $\psi = 0$. $Ae^{-ika/2} + Be^{ika/2} = 0 \Rightarrow B = -Ae^{-ika}$
 $Ce^{ika/2} + De^{-ika/2} = 0 \Rightarrow D = -Ce^{ika}$

c) $\psi_L(0) = \psi_R(0) \Rightarrow A + B = C + D$
 Condition on derivative, at $x=0$.
 $-\frac{\hbar^2}{2m} \Delta \left(\frac{d\psi}{dx} \right) + \alpha \psi(0) = 0$ or $\Delta \left(\frac{d\psi}{dx} \right) = \frac{2m\alpha}{\hbar^2} \psi(0)$
 This becomes $\left[\frac{d\psi_L}{dx} \right]_0 - \left[\frac{d\psi_R}{dx} \right]_0 = \frac{2m\alpha}{\hbar^2} \psi(0)$
 $ik(Ce^{ika} - De^{ika}) - ik(Ae^{-ika} - Be^{-ika}) = \frac{2m\alpha}{\hbar^2} (A+B)$
 or $ik[C - D - A + B] = \frac{2m\alpha}{\hbar^2} (A+B)$

[Download PDF version of :](#)
Quantum Mechanics Exam Solutions