Starting from the definitions of the probability density $\rho$, and the probability current $\vec{j}$,

\[ \rho(\vec{r}, t) \equiv |\psi(\vec{r}, t)|^2 \equiv \psi^*(\vec{r}, t)\psi(\vec{r}, t) , \]
\[ \vec{j}(\vec{r}, t) \equiv \frac{i\hbar}{2m} \left( \psi(\vec{r}, t)\nabla^*\psi(\vec{r}, t) - \psi^*(\vec{r}, t)\nabla\psi(\vec{r}, t) \right) , \]

show that if $\psi(\vec{r}, t)$ satisfies the Schrödinger equation,

\[ i\hbar \frac{\partial}{\partial t} \psi(\vec{r}, t) = -\frac{\hbar^2}{2m} \nabla^2 \psi(\vec{r}, t) + V(\vec{r})\psi(\vec{r}, t) \]

with a real-valued potential ($V(\vec{r}) = V(\vec{r})^*$), then the equation of continuity,

\[ \frac{\partial}{\partial t} \rho(\vec{r}, t) + \nabla \cdot \vec{j}(\vec{r}, t) = 0 , \]

follows. (In case you have not seen $\nabla$ before, it is the vector operator $\nabla = \hat{i}\frac{\partial}{\partial x} + \hat{j}\frac{\partial}{\partial y} + \hat{k}\frac{\partial}{\partial z}$ and the Laplacian operator $\nabla^2$ is the dot product of $\nabla$ with itself: $\nabla \cdot \nabla = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}$. This problem is quite simple, straightforward algebra.)