6-7. Suppose the potential energy $V(\mathbf{r}) = -e\phi(\mathbf{r})$ is the result of a charge distribution $\rho(\mathbf{r})$ so that

$$\nabla^2\phi(\mathbf{r}) = -4\pi\rho(\mathbf{r}) \tag{6.48}$$

In polar coordinates

$$I = \int_0^{2\pi}\int_0^{\pi}\int_0^{\infty} \nabla^2\phi(\mathbf{r}) \exp\left(\frac{ipr\cos\theta}{\hbar}\right) r^2 \sin\theta \, dr \, d\theta \, d\phi$$