1. [Griffiths 10.23] A point charge $q$ moving with constant velocity $\vec{v}$ is at the origin at time $t = 0$. The potentials caused by this charge are known to be

$$\Phi(\vec{r}, t) = \frac{1}{4\pi \epsilon_0} \frac{qc}{\sqrt{(c^2 t - \vec{r} \cdot \vec{v})^2 + (c^2 - v^2)(r^2 - c^2 t^2)}}$$

and

$$\vec{A}(\vec{r}, t) = \frac{\mu_0}{4\pi} \frac{qcv}{\sqrt{(c^2 t - \vec{r} \cdot \vec{v})^2 + (c^2 - v^2)(r^2 - c^2 t^2)}}$$

Verify that these potentials satisfy the Lorenz gauge condition.