1 Total Current, Circular Cross Section

A current I flows down a cylindrical wire of radius R.

(a) If it is uniformly distributed over the surface, give a formula for the surface current density $\vec{K}$.

(b) If it is distributed in such a way that the volume current density, $|\vec{J}|$, is inversely proportional to the distance from the axis, give a formula for $\vec{J}$.