Homework Assignment #29

(due Nov 14, 2022, at the beginning of class)

1. Griffiths 6.7

   Hint: Notice that you obtain for $\vec{K}_{\rm b}$ the same expression you get for the surface current density of a solenoid.

2. A long circular cylinder of radius R carries a magnetization $\mathbf{M} = k\, s^5\, \hat{\boldsymbol{\phi}}$ parallel to its axis. Determine the magnetic field $\mathbf{B}$ (due to $\mathbf{M}$) inside and outside the cylinder.

   Hint: First determine $\vec{J}_{\rm b}$ and $\vec{K}_{\rm b}$, and then use Ampère's Law to determine $\vec{B}$. You get contributions due to both $\vec{J}_{\rm b}$ as well as $\vec{K}_{\rm b}$.