(1) Consider a cylinder of length L and radius a, that has a constant magnizitation along its axis of symmetry. Find the $\boldsymbol{B}$ field along the axis of symmetry in the region inside the cylinder.

(2) Consider a spherical cavity of radius a embedded in an isotropic magnetic material of permeability μ. If the $\boldsymbol{B}$ field is constant, along some direction, at a very large distance r from the center of the sphere, find the $\boldsymbol{B}$ field inside the cavity.