

Homework Assignment #26

(due Oct. 23, 2020, 11pm, via gradescope)

1. Griffiths 5.4

Hint: make sketch, treat each wire separately, apply symmetry

2. Griffiths 5.5

Hint: $J = A/s$ so you need to determine A to get \vec{J}

3. Griffiths 5.6 (variation)

(a) Same as Griffith's problem 5.6a

(b) (Griffith's problem 5.6b but for cylinder) A uniformly charged cylinder of radius R and length L and total charge Q is centered on the z -axis and origin. The symmetry axis of the cylinder is along the z -axis. The cylinder is spinning at constant angular velocity ω about the z -axis, i.e. about the symmetry axis of the cylinder. Find the current density \vec{J} at any point (s, ϕ, z) within the cylinder.