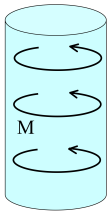
6.21

A solid cylinder has uniform magnetization **M** throughout the volume in the φ direction as shown. In which direction does the bound surface current flow on the (curved) sides?

A. There is no bound surface current.
B. The current flows in the ±φ direction.
C. The current flows in the ±*s* direction.
D. The current flows in the ±*z* direction.
E. The direction is more complicated than the answers B, C, or D.



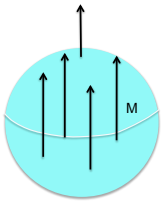
What did you get for the bound current?
A) Fraction of an amp
B) ~ 10 A
C) ~ 1000 A
D) ~ MA
E) Nowhere near (order of magnitude) any of these…

6.6

A sphere has uniform magnetization M in the z direction.

Which formula is correct for this surface current?

A) $\mathrm{M}\ \sin\theta\ \hat{\theta}$
B) $\mathrm{M}\ \sin\theta\ \hat{\varphi}$
C) $\mathrm{M}\ \cos\theta\ \hat{\theta}$
D) $\mathrm{M}\cos\theta\ \hat{\varphi}$
E) None of these!



6.9 A very long aluminum (paramagnetic!) rod carries a uniformly distributed current I along the +z direction.
What is the direction of the bound volume current?

A) $\mathbf{J_B}$ points parallel to I
B) $\mathbf{J_B}$ points anti-parallel to I
C) It's zero!
D) Other/not sure