

S.P. 2-F

If $\mathbf{A} = \cos \phi \hat{\mathbf{a}}_\phi$, find the average value of \mathbf{A} within a unit sphere centered at the origin.

S.P. 2-G

If $\mathbf{A} = xy \hat{\mathbf{a}}_x + zy \hat{\mathbf{a}}_y$, find the average value of \mathbf{A} within the cube
 $0 \leq x \leq 1, 0 \leq y \leq 1, 0 \leq z \leq 1$