EECS 221

S.P. 2-M

For $\mathbf{A}(\mathbf{r}) = r\sin\theta\,\hat{\mathbf{a}}_r - \frac{r}{2}\cos\theta\,\hat{\mathbf{a}}_\theta + r\cos\phi\,\hat{\mathbf{a}}_\phi$, find the value of $\oint_C \mathbf{A}\bullet\mathbf{d}\ell$ over the quarter-circle surface in the ϕ=45° plane and in the direction shown below by:

a) Evaluating the line integral directly

b) Using of Stokes Theorem