King Fahd University of Petroleum and Minerals
MATH-302
Quiz 4

Name:- **ID:-** **Sec.:04**

---

(1) Verify Stokes's theorem for $\mathbf{F} = 2\rho z\boldsymbol{a_\rho} + 3z\sin\varphi\,\boldsymbol{a_\varphi} - 4\rho\cos\varphi\boldsymbol{a_z}$ over the surface defined by $z = 1,\ 0 < \rho < 2,\ 0 < \varphi < \pi/4$.

Hint. $d\boldsymbol{l} = d\rho\,\widehat{\boldsymbol{a_\rho}} + \rho d\phi\,\widehat{\boldsymbol{a_\phi}} + dz\,\widehat{\boldsymbol{a_z}}$