Problems: Extended Stokes’ Theorem

Let $\mathbf{F} = (2xz + y, 2yz + 3x, x^2 + y^2 + 5)$. Use Stokes’ theorem to compute $\int_C \mathbf{F} \cdot d\mathbf{r}$, where $C$ is the curve shown on the surface of the circular cylinder of radius 1.

Figure 1: Positively oriented curve around a cylinder.