

## Questions

1. Let  $\phi$  be the scalar field  $\phi(x, y, z) = 1$  and  $C$  the curve given by  $\mathbf{r}(t) = t\hat{\mathbf{i}} + \hat{\mathbf{j}} + (1 - t)\hat{\mathbf{k}}$  for  $1 \leq t \leq 2$ . Calculate  $\int_C \phi \, ds$ .