

## Questions

1. Let  $\mathbf{F}$  be the vector field  $\mathbf{F}(x, y, z) = \hat{\mathbf{i}} + y^2 z \hat{\mathbf{j}} + 2x^2 \hat{\mathbf{k}}$  and  $C$  the curve given by  $\mathbf{r}(t) = \hat{\mathbf{i}} + t \hat{\mathbf{j}} + t(2 - 3t) \hat{\mathbf{k}}$  for  $0 \leq t \leq 1$ . Calculate  $\int_C \mathbf{F} \cdot d\mathbf{r}$ .