

## Questions

1. Let  $\mathbf{F}$  be the vector field  $\mathbf{F}(x, y, z) = 3y\hat{\mathbf{i}} - x\hat{\mathbf{j}} + \hat{\mathbf{k}}$  and  $C$  the curve given by  $\mathbf{r}(t) = (t+1)\hat{\mathbf{i}} + t\hat{\mathbf{j}} + t(4-t)\hat{\mathbf{k}}$  for  $-3 \leq t \leq 2$ . Calculate  $\int_C \mathbf{F} \cdot d\mathbf{r}$ .