

Questions

1. Let \mathbf{F} be the vector field $\mathbf{F}(x, y, z) = 8yz\hat{\mathbf{i}} + \hat{\mathbf{j}} + (z + 2)\hat{\mathbf{k}}$ and C the curve given by $\mathbf{r}(t) = (t + 1)\hat{\mathbf{i}} + 2t^3\hat{\mathbf{j}} + 4\hat{\mathbf{k}}$ for $0 \leq t \leq 2$. Calculate $\int_C \mathbf{F} \cdot d\mathbf{r}$.