Questions

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