EECS 221

S.P. 2-K

For $\mathbf{F}(\mathbf{r}) = yz^2\,\hat{\mathbf{a}}_x + xz^2\,\hat{\mathbf{a}}_y + 2xyz\,\hat{\mathbf{a}}_z$, find the value of $\int_{P_1}^{P_2} \mathbf{F} \bullet \mathbf{d}\ell$ where $P_1 = (0,0,0)$, $P_2 = (1,1,1)$ along

a) A straight path from P_1 to P_2

b) The path $y = x^2$ and $z = \sqrt{x}$ from P_1 to P_2

c) Repeat a) and b) by noticing that the vector field **F**(**r**) can be expressed as the gradient of some scalar field f(**r**).