

12/12/22 Q24

1)  $\int_C F \cdot dr$

$$F(x, y, z) = (yz + 2y + 3z) i \\ + (xz + 2x + 4z) j \\ + (xy + 3x + 4y) k$$

$$\int_C F \cdot dr = \iint \text{curl}(F)$$

$\text{curl}(F)$

$$\begin{pmatrix} i & j & k \\ \frac{d}{dx} & \frac{d}{dy} & \frac{d}{dz} \\ yz + 2y + 3z & xz + 2x + 4z & xy + 3x + 4y \end{pmatrix}$$

$$= 0$$

With the curl being 0, the final answer is 0.