

q24 Rahul Paleja

Section: 22

$$\text{curl}(F) = \begin{vmatrix} i & j & k \\ \frac{d}{dx} & \frac{d}{dy} & \frac{d}{dz} \\ yz + 2y + 3z & xz + 2x + 4z & xy + 3x + 4y \end{vmatrix}$$

$$i((x+4) - (x+4)) - j((y+9) - (y+3)) + k((z+9) - (z+2)) \\ = 0i - 0j + 0k$$

$\text{curl} = 0$; thus the integrand is 0

meaning $\int_C F \cdot dr = \iint_S \text{curl}(F) \cdot ds = 0$