Choosing y as the parameter, we have $x = e^y$, $y = y$, $0 \le y \le 4$. Then
$\int_c xe^y \, dx = \int_0^4 e^y(e^y)e^y \, dy = \int_0^4 e^{3y} \, dy = \left[\frac{1}{3}e^{3y}\right]_0^4 = \frac{1}{3}(e^{12} - 1)$.