1. Let C be the circle of radius 4 centered at the origin, traversed clockwise. Use Green's theorem to set up an iterated integral equal to $\oint_C xy^2\,dx + e^{xy}\,dy$. *Do not integrate.*

2. Identify the sign of the flux of $\underline{F} = x\underline{j}$ through the surface S, where S is the piece of the plane $y = 2$ with $-2 \leq x \leq 0, 0 \leq z \leq 4$ and S is oriented with its normal vector pointing away from the xz-plane. Provide brief justification.