4. Compute the work done in taking a particle around the circle $x^2 + y^2 = a^2, z = 0$ if the force is (a) $\boldsymbol{F} = y\boldsymbol{i}$, and (b) $\boldsymbol{F} = x\boldsymbol{i}$. What do you conclude about these forces? (Use the parametrization $x = a\cos\varphi, y = a\sin\varphi, z = 0$.)