

1. Let $\vec{F} = 3s \hat{s}$.
 - Make a rough sketch of $\vec{F}$.
 - Suppose you have a paddlewheel and dipped it into a pool that flowed according to $\vec{F}$. Would the paddlewheel spin?
 - This is related to the line integral of $\vec{F}$ around a closed path. Do you think the line integral would be positive negative or zero?
2. Let $\vec{G} = \frac{1}{s} \hat{\phi}$.
 - Make a rough sketch of $\vec{G}$.
 - Suppose you have a paddlewheel and dipped it into a pool that flowed according to $\vec{G}$. Would the paddlewheel spin?
 - This is related to the line integral of $\vec{G}$ around a closed path. Do you think the line integral would be positive negative or zero?
3. The trait highlighted in #1 and #2 can be quantified by *curl*. In two dimensions, the curl of $F_s \hat{s} + F_\phi \hat{\phi}$ is $(\frac{1}{s} \frac{\partial}{\partial s}(sF_\phi) - \frac{\partial}{\partial \phi} F_s) \hat{z}$.
 - Compute the curl for both $\vec{F}$ and $\vec{G}$.