1. Consider the vector field $\vec{F}$ shown at the right, and the loop $C$, which is to be traversed in the \textit{counterclockwise} direction. Is $\oint_C \vec{F} \cdot d\vec{r}$ positive, negative, or zero?

2. (a) For each vector field $\vec{F}$ shown below, sketch a curve for which the integral $\int_C \vec{F} \cdot d\vec{r}$ is positive.

(b) For which of these vector fields is it possible to choose your curve to be closed?

\textit{EXTRA CREDIT:}
From your answer to Problem 1, can you determine whether or not $\vec{F} = \vec{\nabla}f$ for some function $f$?