

CIRCULATION

Determine the flow or circulation, $\int_C \vec{F} \cdot \vec{T} ds$, created by each vector field below along the indicated path.

1. $\vec{F} = x\hat{i} + y\hat{j}$ and C is the line segment from $(1,2)$ to $(5,10)$.
2. $\vec{F} = x\hat{i} + y\hat{j}$ and C is the line segment from $(5,10)$ to $(1,2)$.
3. $\vec{F} = -x\hat{i} - y\hat{j}$ and C is the line segment from $(1,2)$ to $(5,10)$.
4. $\vec{F} = x\hat{i} + y\hat{j}$ and C is the unit circle oriented counterclockwise.
5. $\vec{F} = -y\hat{i} + x\hat{j}$ and C is the unit circle oriented counterclockwise.
6. $\vec{F} = -y\hat{i} + x\hat{j}$ and C is the unit circle oriented clockwise.
7. $\vec{F} = y\hat{i} - x\hat{j}$ and C is the unit circle oriented counterclockwise.