1 Divergence Estimate

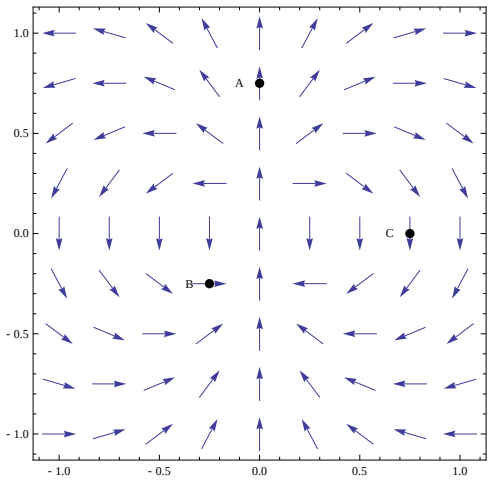
Suppose $\vec{\nabla} \cdot \vec{F} = xyz^2$.

(a) Find $\vec{\nabla} \cdot \vec{F}$ at the point $(1, 2, 1)$.
Note: You are given $\vec{\nabla} \cdot \vec{F}$, not $\vec{F}$!

(b) Using your answer to part (a), but no other information about the vector field $\vec{F}$, estimate the flux out of a small box of side 0.2 centered at the point $(1, 2, 1)$ and with edges parallel to the axes.

(c) Without computing the vector field $\vec{F}$, calculate the exact flux out of the box.

2 Divergence



Shown above is a two-dimensional vector field.
Determine whether the divergence at point A and at point C is positive, negative, or zero.