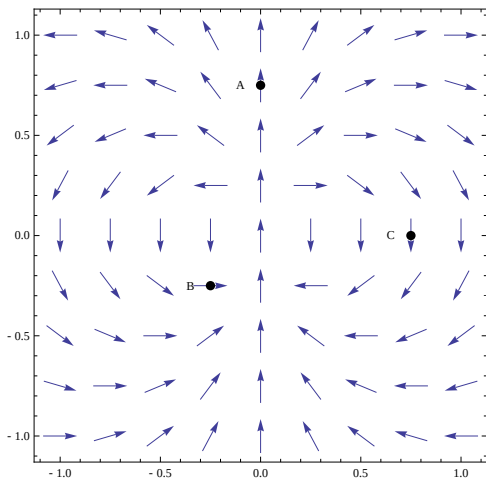


## 1 Divergence Estimate

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

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