

- 1) Sketch a 2-D vector field that has non-zero divergence but zero curl.
- 2) Sketch a 2-D vector field that has zero divergence but non-zero curl.
- 3) Sketch a 2-D vector field that has non-zero divergence but non-zero curl.
- 4) Compute the Gradient of  $f = x^2 + y^2 + z^2$ .
- 5) Compute the Divergence of  $f = \{x, y, z/y, x y\}$ .
- 6) Compute the Curl of  $f = \{y, -x, 0\}$
- 7) Write down Maxwell's Equations in differential form (not integral form)