1. Each diagram below depicts a vector force field in a region of space. For each case, could the force depicted in the diagram be *conservative?* Explain your reasoning in each case.

  

2. (*Note: This problem may also serve as a post-test for* Angular momentum and Kepler’s second law.)

A small plastic puck is placed on a frictionless horizontal air table. The puck is made to move under the influence of a (net) force expressed in Cartesian coordinates as:

*,* where *c* is a constant.

A. For what value of *c* is the above force conservative? Show your work.

B. Is the above force separable? Explain how you can tell and/or show your work.

C. As the puck moves under the influence of the above force, would the angular momentum of the puck (with respect to the origin, (0, 0)) be conserved? Explain how you can tell and/or show your work.