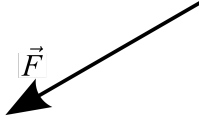


Name: _____

Number of Paths

Working in small groups (2 or 3 people), solve as many of the problems below as possible. Try to resolve questions within the group before asking for help. Each group member should then write up solutions in their own words.



The Sign of Work: For the force vector shown at left, draw small displacement vectors \vec{du} , \vec{dv} , and \vec{dw} such that the work done by \vec{F} is positive, zero, and negative for small displacements in those directions, respectively.

Number of Paths: Points are marked on fields \vec{G} and \vec{H} . How many paths can you draw between each pair of points where the integral is positive, negative, or zero?

Number of paths with			Starting Point	Ending Point	Number of paths with		
$\int \vec{G} \cdot d\vec{r} > 0$	$\int \vec{G} \cdot d\vec{r} = 0$	$\int \vec{G} \cdot d\vec{r} < 0$			$\int \vec{H} \cdot d\vec{r} > 0$	$\int \vec{H} \cdot d\vec{r} = 0$	$\int \vec{H} \cdot d\vec{r} < 0$
			▲	■			
			■	★			
			★	▲			

Match a Surface: One of the vector fields corresponds to (part) of your surface. Where does it match, and how do you know?

Other Surface? Could the other vector field correspond to a surface? Explain why or why not.

Activity Evaluation

What was the main point of this activity?

Describe one thing you understand as a result of this activity.

Describe one thing that is confusing after completing this activity.

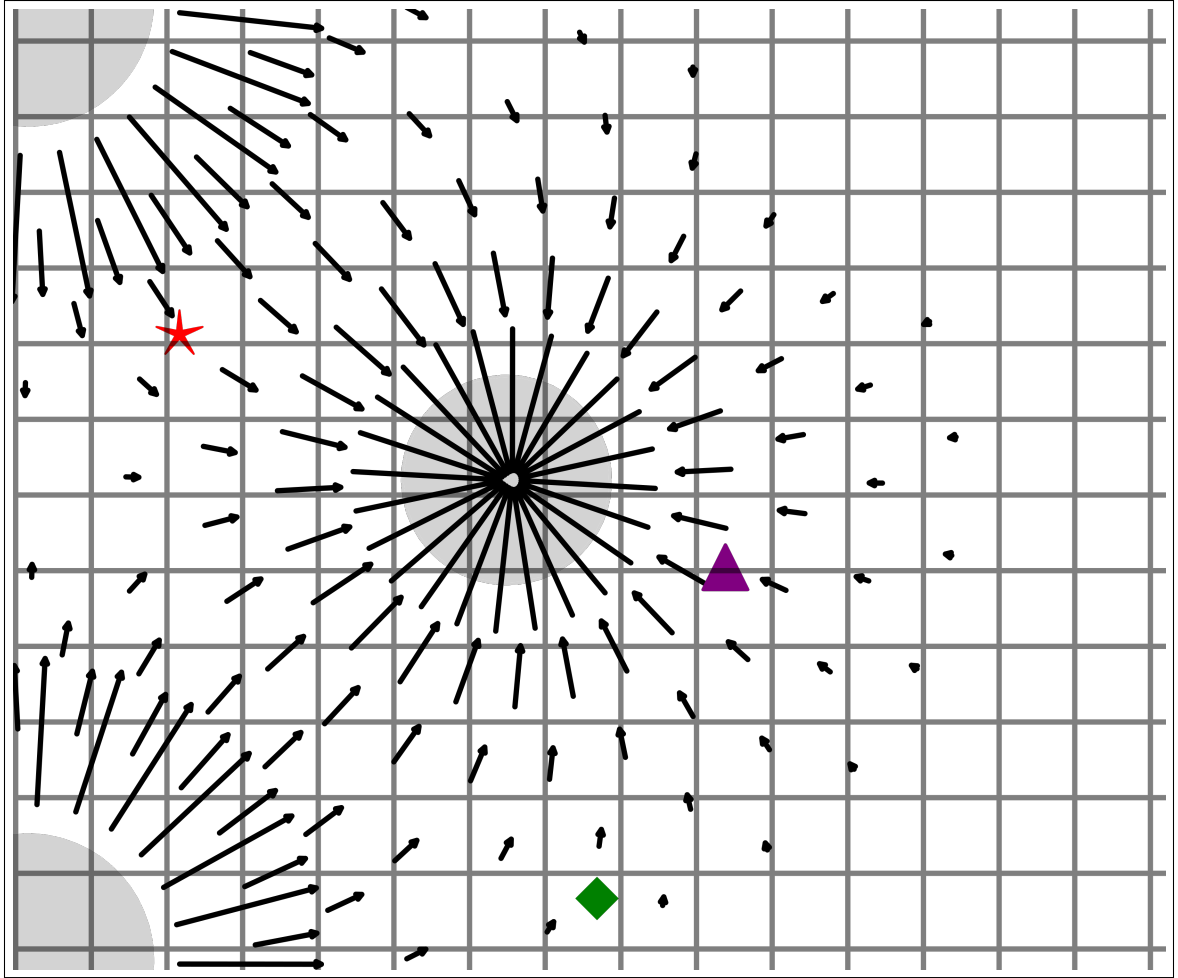


FIGURE 1. Field \vec{G}

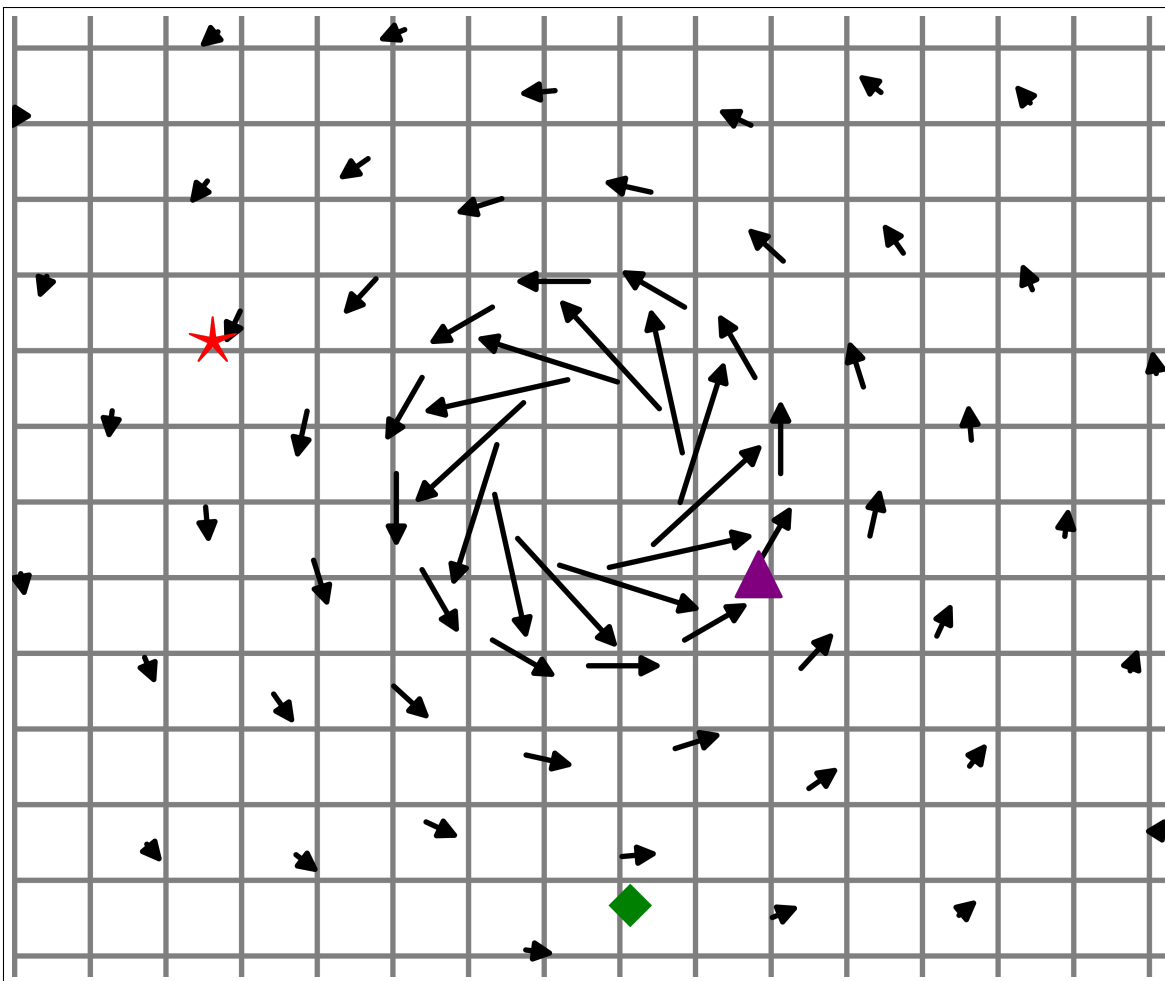


FIGURE 2. Field \vec{H}