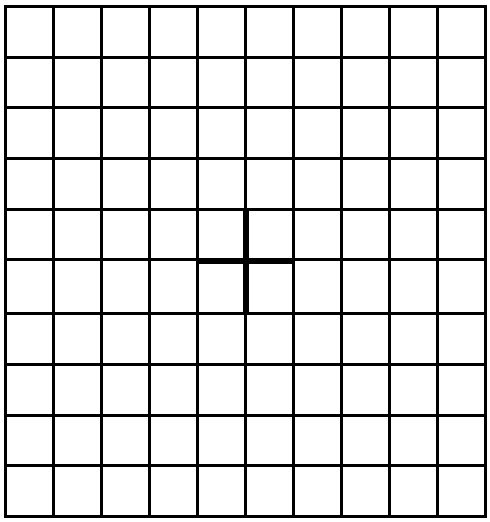
Corralling the Sheep
Student Activity

Name _____
Class _____

In this activity, you will write linear equations with restricted domains to model fencing around a herd of sheep, then map out the fencing using the TI-Innovator Rover.

Note the location of your sheep on the coordinate grid shown at right.

1. Sketch a fence around your sheep that meets the following conditions:
   - The fencing begins at (0,0).
   - The fencing is made of four linear functions with restricted domains.
   - The four pieces of fencing are connected to form a polygon.
   - The fencing ends at (0,0).



2. Write linear functions in the form $y = mx + b$ for each of the four sections of fencing. Note the restricted domain for each function, as well.

Fence Section	Linear Function in the Form $y = mx + b$	Restricted Domain
1		≤ x ≤
2		≤ x ≤
3		≤ x ≤
4		≤ x ≤

3. Position the Rover at the origin of the coordinate plane facing toward the positive x-axis. Run the ***Corralling the Sheep*** program on your calculator connected to the TI-Innovator Rover. When prompted, enter your four linear equations and domain restrictions into the Rover. Record your observations below.

Extension: Fence in the sheep using the least amount of fencing. Your fence still needs to meet the criteria outlined in problem 1 above. How do you know you've used the least amount of fencing? How much fencing is needed?