

## Exploring Contours in the Physical World – Class Handout

1. Sketch a contour diagram on the back of this handout that incorporates the contours placed by the class.
2. Note that regions in your contour diagram in which contours are close to each other correspond to relatively steep regions in the landscape. Give an intuitive explanation for this relationship.
3. What is the behavior of the contours on planar regions, such as on a section of a sidewalk?
4. How do contours behave around peaks and valleys? Is it possible to tell from a contour diagram alone what happens inside the innermost contour?
5. Is it possible for two strings to cross? More specifically, some possibilities to consider are the following. Can a contour consist of multiple disjoint curves? Can a contour consist of intersecting curves? Can contours corresponding to different heights intersect? Explain.
6. What is the relationship between the direction of greatest rate of increase at a point and the contour through that point? What can you say about the direction of greatest rate of decrease at a point?
7. Describe how to estimate the instantaneous rate of change in a specific direction.
8. Discuss some pros and cons of using a contour diagram vs. a three dimensional graph of a function.