Quiz, Feb 29

Name:

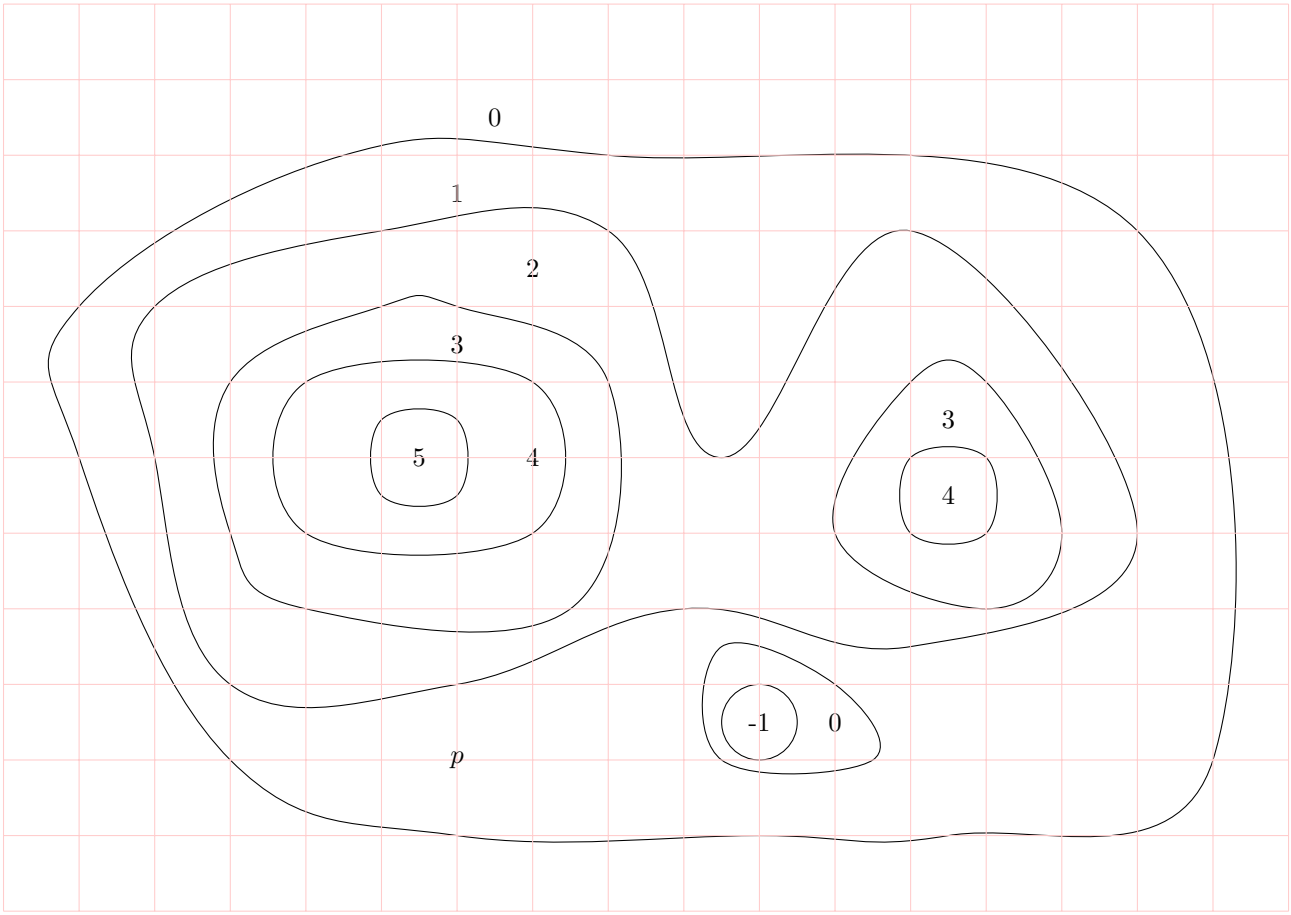
0.1. **Tangent Plane.** Suppose that $\nabla f(2,3) = \langle 3, 4\rangle$ and that $f(2,3) = 2$. Find the equation to the plane tangent to the graph of f going which contains the point $(2, 3, 2)$.

0.2. **Minimizing a function.** Find the point on the upper hemisphere

$$f(x, y) = \sqrt{1 - x^2 - y^2}$$

which is closest to the point (2, 3, 6).

0.3. **Reading Contour Graphs.**



Mark the Local Maximas, Local Minimas, and Saddle points on this contour plot. Then estimate directional directives at p

- In the $\langle 1, 0\rangle$ direction?
- In the $\langle 0, 1\rangle$ direction?
- In the $\langle 0, -1\rangle$ direction?
- In the $\langle 3/\sqrt{13}, 2/\sqrt{13}\rangle$ direction?

Bonus Problem. *Worth no points!* There are two roads from Evans to Wheeler , and two people are able to walk from Evans to Wheeler along the two routes while holding a 50 foot long rope. Prove that if one person goes from A to B along one route, and the other from B to A along the other route, then at some point they are at most 50 feet away from one another.