

Math 8  
Winter 2020

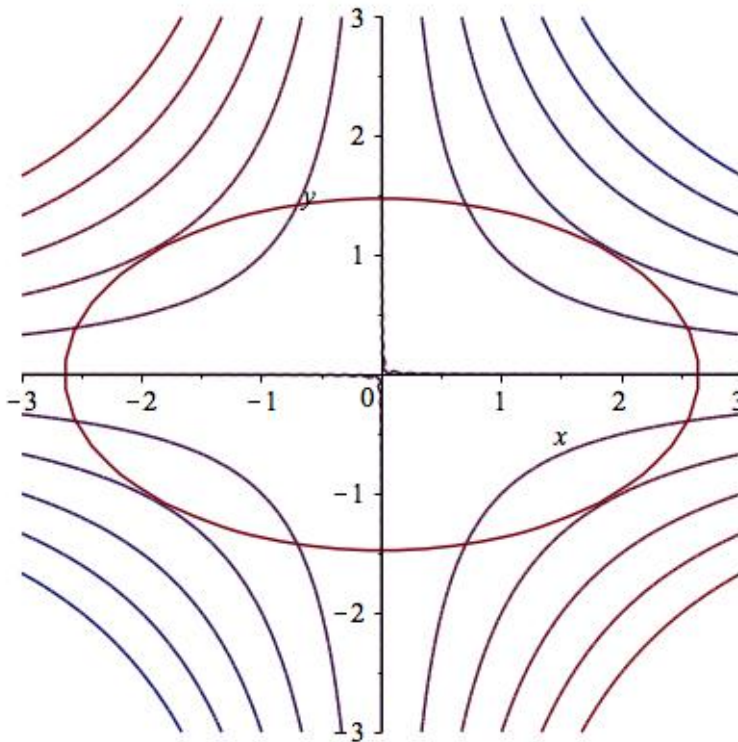
Preliminary Homework  
Assigned Monday, March 2

Note: Preliminary homework is always graded credit or no credit. **You get full credit for completing the assignment, whether or not your answers are correct.** The purpose of preliminary homework is to start you thinking about the topic of the next class.

You may use your preliminary homework in activities with your classmates. You should be sure to think about these questions so you will be prepared.

Preliminary homework is always due at the *beginning* of class.

**Assignment:** Pictured are some level curves of the function  $f(x, y) = xy$ , and an ellipse  $\gamma$ , which is a level curve of a function  $g(x, y)$ .



1. Give the approximate coordinates of the points on  $\gamma$  at which  $f(x, y)$  is largest and smallest.
2. What relationship do the level curves of  $f$  and of  $g$  have at those points?
3. What relationship do the gradients of  $f$  and of  $g$  have at those points? Why?