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Take-home Quiz #3
Math 213-002
March 7, 2014

Show all work for each problem

1. Consider the function $f(x) = \frac{1}{\sqrt{y - e^x}}$
 - a) Find its domain and range. Sketch the domain as a region in the (x, y) plane. Is it an open or closed region?
 - b) Sketch the level curves $f=1$ and $f=2$

2. Differentiate the function $f(x) = \ln(x + y \sin(xy^2))$ and find $\frac{\partial f}{\partial x}(1, 0)$ and $\frac{\partial f}{\partial y}(1, 0)$