Some hints on HW from Ch.13.8 Oct 19, 2010

7) Pay special attention to dots and crossings. If you don't 'get it' you might draw some level curves for simpler examples that you already know well; such as $f = xy$ or $f = x^2+y^2$, to get the idea.

27) This is a case where $D = 0$, which means you need a different approach. Please don't email me for help until you've tried this yourself! It isn't very hard because you can think about the max and/or min of x^4 and of y^4 separately, and you don't really even need Calculus to do that.

31) I wanted you to work through at least one triangle example, but will offer a little help. The boundary consists of three segments; I'll do the hypotenuse for you. It goes from $(0, 4)$ to $(5, 0)$ so as a vector, it is $\langle 5, -4\rangle$. Parametric equations are: $x = 5t$ and $y = 4 - 4t$. Plugging into f we get $f(t) = 5t(4-4t)-5t-3(4-4t) = -20t^2+27t-12$ with $0 \le t \le 1$. Using Calc I, we get $f'(t) = 0$ when $t = 27/40$ and our 'candidates' are $t = 27/40$ and the endpoints $t = 0$ and $t = 1$. I get $f(27/40) \approx -3.1$ and $f(0) = -12$ and $f(1) = -5$. Since -5 is in the middle we can ignore it, but -12 is the min on this segment, and -3.1 is the max. Now, you should check me on this and then do the interior and two other sides.

35) Should be very similar to an example done in class.