NAME: _____ **Panther ID:** _____

Take-home Quiz 5 - Due Thu. Mar. 22 MAC 2313, Spring 2012

To receive credit you MUST SHOW ALL YOUR WORK. Answers which are not supported by work will not be considered.

1. (10 pts) Locate and classify (relative max, relative min, or saddle point) all critical points of the function $f(x,y) = xy + \frac{2}{x} + \frac{4}{y}$ on its domain. Without graphing, do you think this function will have an absolute extremum on its domain? Briefly justify your answer.

2. (10 pts) On a metal plate the temperature at the point (x,y) is given by $T(x,y) = x^2 + y^2 + 2xy - 4y + 5$ Celsius degrees. Find the lowest and highest temperatures inside the disk $x^2 + y^2 \leq 4$.