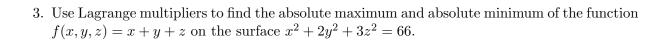
MATH 118

More global extrema and Lagrange multipliers

1. Find the global maximum and minimum values of $f(x,y)=x^2+y^2-4xy+2$ if $0\leq x\leq 3$ and $0\leq y\leq 2$.

2. Use Lagrange multipliers to find the global maximum and minimum values of the function f(x,y)=xy on the circle $x^2+y^2=2$.



4. Find the extreme values of the function $f(x,y) = e^{-xy}$ on the region defined by $x^2 + 4y^2 \le 1$.