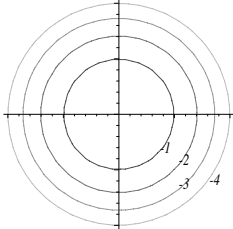
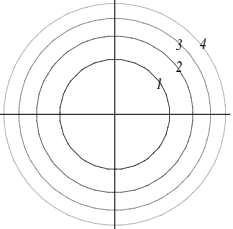
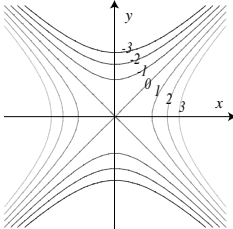
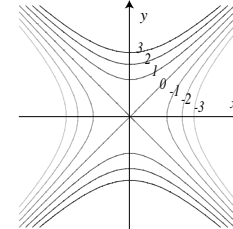
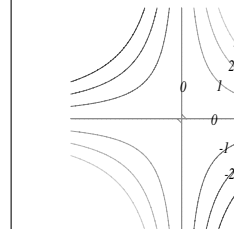
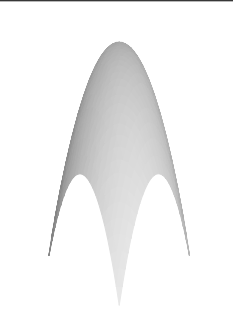
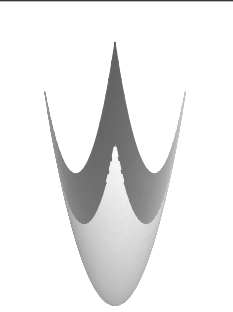
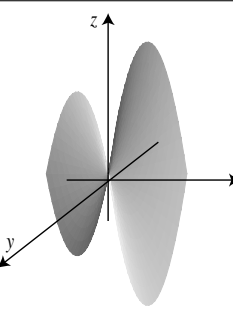
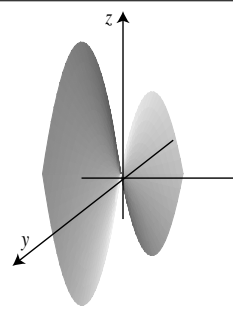
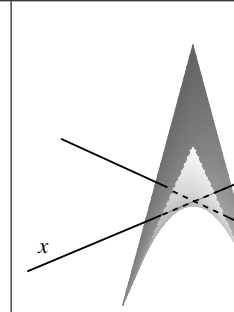
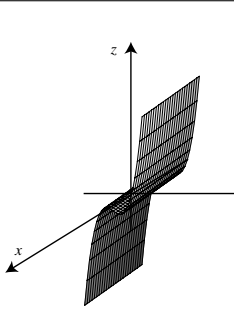


Second derivative test

This is, more or less, the big chart I drew in class when discussing the second derivative test.

Type	local max	local min	Saddle	Saddle	Saddle	Undetermined
Contours						
3-D graph						
Equation	$z = -x^2 - y^2$	$z = x^2 + y^2$	$z = x^2 - y^2$	$z = y^2 - x^2$	$z = xy$	$z = y^3$
$Hf(0,0)$	$\begin{pmatrix} -2 & 0 \\ 0 & -2 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & -2 \end{pmatrix}$	$\begin{pmatrix} -2 & 0 \\ 0 & 2 \end{pmatrix}$	$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$	$\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$