1. Find the local maximum and minimum values and saddle point(s) of the function \( f(x, y) = x^4 + y^4 - 4xy + 2 \).

2. Figure 2 shows some level curves of a function \( f \). (4%)

   (1) Use the figure to estimate the saddle points and the points where local minimum and maximum values occur.
   
   \[ \text{saddle points: } \text{local minimum: } \text{local maximum: } \]

   (2) Determine whether the discriminant \( D(0,0) \) is positive or negative. \( D(0,0): \)

\[ \begin{align*}
\frac{\partial^2 f}{\partial x^2} &= 4x^2 - 4y \\
\frac{\partial^2 f}{\partial y^2} &= 4y^2 - 4x \\
\frac{\partial^2 f}{\partial x \partial y} &= -4x - 4y
\end{align*} \]