$$D \equiv f_{xx} f_{yy} - f_{xy}^2 = 2(-2x+2) - (-2y)^2$$

$$= -4x + 4 - 4y^2$$

$$D(0,0) = 4 > 0 \quad f_{xx}(0,0) = 2 > 0$$

よって　(0,0) は 極小値で f(0,0) = 0 = C

$$D(1, \pm\sqrt{2}) = -8 < 0$$

よって　$(1, \pm\sqrt{2})$ は 鞍点で $f(1, \pm\sqrt{2}) = 1 = C$ 。

C = 1 のとき,

$$f(x,y) = x^2 - xy^2 + y^2 = 1 \Rightarrow (x-1)(x+1-y^2) = 0$$

$$\Rightarrow x = 1, \quad x = y^2 - 1$$