Contour Plots

Consider the contour plot of \( f(x, y) \) as shown below.

1. Estimate \( f(C) \).
2. Estimate the rate of change from \( A \) to \( B \).
3. Estimate \( f_x \) at point \( A \).
4. Estimate \( f_y \) at point \( B \).
5. Sketch the gradient vector \( \nabla f \) at \( A \) on the contour plot (it need not be to scale).
6. Sketch the gradient vector \( \nabla f \) at \( B \) on the contour plot (it need not be to scale).
7. Sketch the gradient vector \( \nabla f \) at \( C \) on the contour plot (it need not be to scale).
8. At \( B \), is \( f_x \) positive or negative? Explain.