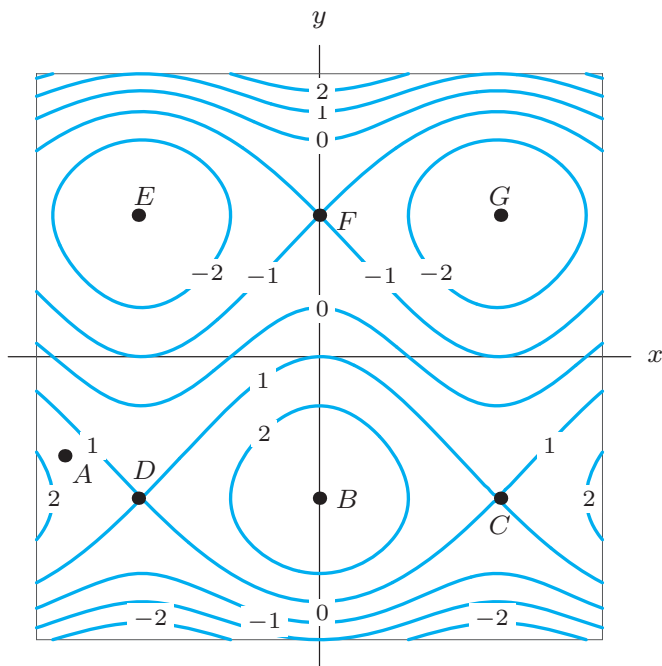


Problem 1: Find all critical points of $f(x, y) = x^2 + y^2$. Classify the points as maximums, minimums, or neither.

Problem 2: Find all critical points of $f(x, y) = -\sqrt{x^2 + y^2}$. Classify the points as maximums, minimums, or neither.

Problem 3: Find all critical points of $f(x, y) = x^2 - y^2$. Classify the points as maximums, minimums, or neither.

Problem 4: Decide whether the points A-G in the contour diagram are critical points. For those that are, classify them as local maximums, minimums, or neither.



Problem 5: Find all critical points of $f(x, y) = 5 + 6x - x^2 + xy - y^2$. Classify the points as maximums, minimums, or neither.

Problem 6: Find all critical points of $f(x, y) = x^2y + 2y^2 - 2xy + 6$. Classify the points as maximums, minimums, or neither.