Assignment 8A - Objective

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) Let \( f(x, y) = 12x^2 + y^2 + 12xy - 75y \). Then the point \((2, -3)\) is
   - a critical point which is a local maximum.
   - a critical point which is a local minimum.
   - a critical point which is a saddle point.
   - not a critical point.
   **No, the answer is incorrect.**
   **Score: 0**
   Accepted Answers:
   - a critical point which is a saddle point.

2) Let \( g(x, y) = y^2 - 32y + x^2 - x^3 \). Then the point \((1, 2)\) is
   - a critical point which is a local maximum.
   - a critical point which is a local minimum.
   - a critical point which is a saddle point.
   - not a critical point.
   **No, the answer is incorrect.**
   **Score: 0**
   Accepted Answers:
   - not a critical point.

3) For a box with an open top having dimensions \( l \times b \times h \), the volume is \( V = lbh \) and the surface area is \( A = 2hb + 2lh + lb \), where \( l \) is the length, \( b \) is the breadth and \( h \) is the height. If \( V \) is assumed to be a fixed constant, then the dimensions of the box that minimize \( A \) are
   - \( l = (2V)^{1/3}, b = (2V)^{1/3}, h = V/(2V)^{1/3} \)
   - not a critical point.
   **No, the answer is incorrect.**
   **Score: 0**
   Accepted Answers:
   - not a critical point.

4) Let \( h(x, y) = x^2 - y^2 + xy \). Then the point \((0, 0)\) is
   - a critical point which is not a saddle point.
   - a critical point which is a saddle point.
   - not a critical point.
   **No, the answer is incorrect.**
   **Score: 0**
   Accepted Answers:
   - not a critical point.

5) Let \( k(x, y) = x^2 + y^2 + 2xy \). Then
   - \( k \) has infinitely many critical points which are all global minima.
   - \( k \) has infinitely many critical points of which some are local extrema and some are saddle points.
   - \( k \) has exactly four critical points of which two are local maxima and two are local minima.
   - \( k \) has no critical points.
   **No, the answer is incorrect.**
   **Score: 0**
   Accepted Answers:
   - \( k \) has infinitely many critical points which are all global minima.