Homework #4

- **Homework (Due date : October 20, 2023 6:00 PM)**

  - Implement the following numerical methods:

    - The method of steepest descent

    - Newton's method

    - Two Quasi Newton's methods (SR1, BFGS).

  - Compare their performance for the following three problems:

    - $f(x, y) = (x + 3y - 5)^2 + (3x + y - 7)^2$

    - $f(x, y) = 50(x - y^2)^2 + (1 - y)^2$

    - $f(x, y) = (1.5 - x + xy)^2 + (2.25 - x + xy^2)^2 + (2.625 - x + xy^3)^2$

  - First start at (1.2, 1.2) for each problem. Then use different starting points to discuss how approximate point is moving on the contour plot of f(x, y).