Optimization – Laboratory 3 Elimination methods

Requirements:

- For the **first part** choose the function from Section 3.3 based on the number assigned in the column **P3** from the status.
- Plot the function in MATLAB for that interval.
- Using the given function and intervals, calculate 3 steps on paper for one of the elimination methods (Fibonnaci, Golden section). Which part of the interval is removed?
- Implement both methods in MATLAB and display the minimum point obtained.
- For the second part consider the function from Section 4.3 specified in column P4 from the status.
- For different starting points (e.g. [0;0], [1;-1], [2;3], [1;-2]) and different directions (e.g. [1;1], [-1;-1], [1;-1], [-1;1]) write on the paper the function of a single variable that results for the optimization of the function in the next point (calculated as $x_{k+1} = x_k + s \mathbf{d}$, where x_k is the current point, and \mathbf{d} is the direction). What is the general expression of the single variable function for given starting points and directions?
- Solve the line search problem using one of the elimination methods.