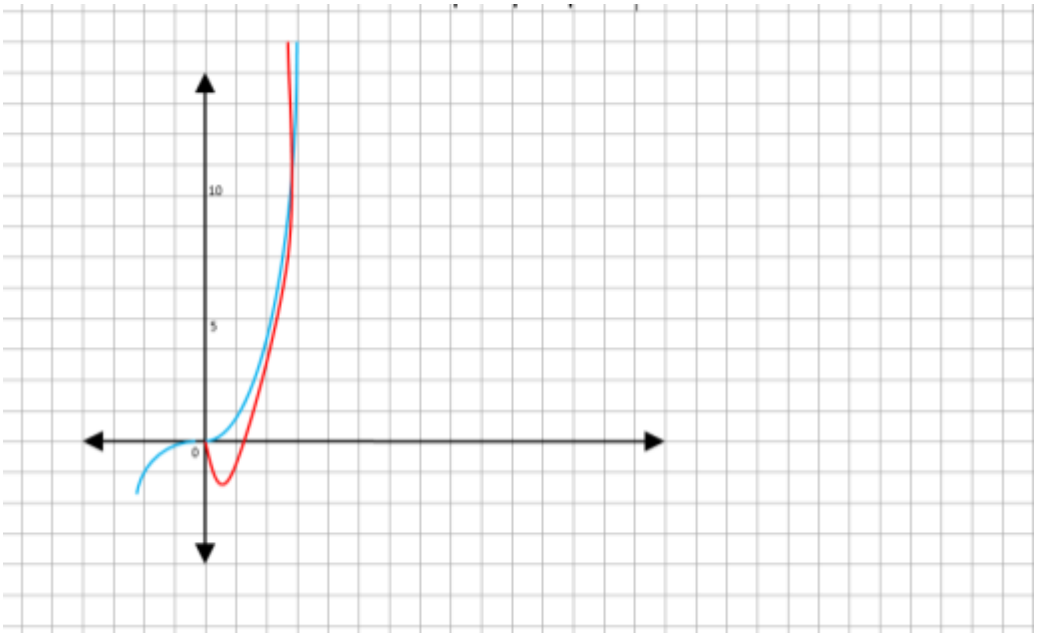
# Practical Task 9.1

1. Given a graph G = <V , E>, what is to be the running time of the depth-first search algorithm, as a function of the number of nodes n = |V| and edges m = |E|, if the input graph is represented by an adjacency matrix instead of an adjacency list?
    - Every node (V) and every edge (E) are searched by the DFS algorithm, so:
      V + E = O
    - O (V^2) is the outcome when using the Adjacently Matrix.

2. Question 2
    - To be precise, Floyd's method of all pair's shortest paths can also be used to find a shortest path between any source and the other vertices However, Dijkstra's algorithm can be used to find in first phase, the shortest path to all vertices of a single source (graph).
    - However, Dijkstra can do almost everything with a little tweak including marking the nearest node a new source and the previous source visited. –the associate stated.
    - Calculate all the edges, It like
      VE log(V)
      =(V(V*(V-1))/2 * log(V)
      =V(V^2 – V)/2 * log(V)
      =(V^3 – V^2) * log(V)
      =V^3 * log(V) – V^2*log(V)



**Breadth – First search**