Q1

Suppose we have a graph consisting of exactly one linear path, encoded in a set of tuples Edge(A,B,cost): (node1,node2,c1), (node2,node3,c2), (node3,node4,c3), ..., (nodeM,node(M+1),cM). We use a recursive query to compute the total cost from node1 to nodeM. If M=1000, roughly how many iterations are needed for the linear versus nonlinear versions of the query?

- ○ 1000 versus 500

- ○ 1000 versus 100

- ◉ 1000 versus 10

- ○ 500 versus 10

Explanation

The linear version adds one step at a time, so it takes about 1000 steps to get the cost for (node1,node1000). The nonlinear version doubles the length each time, so it takes about $\log_2(1000)=\sim 10$ to get the cost for (node1,node1000).