Tom and Jerrey are trapped in a tree. Initially they are on two different vertex, as we know, jerry will run to his home and tom want to catch jerry before he reach his home.but unluckily, there are no home in this tree, so jerry’s being caught is just a matter of time. Your task is to calculate the minimal time tom can catch jerry, of course ,both of them will choose their way optimally.

We define the speed as follows:

Speed is 1 means he can get to the adjacant vertex where he is or stay where he is the next second.

Speed is 2 means he can get to the adjacant of the adjacant vertex where he is , adjacant vertex or stay where he is at the next second.

Jerry ‘s speed is 1, means jerry