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Answer to the Q. No. R-13.2:

Since L is in P which is polynomial time, and it's reducible by language M.

Assume that there is an algorithm A(x) that will return yes if the input is equal to 5.

The piece of algorithm will be:

if A(x) = yes then

return 5

else

return 10

Algorithm MST2SubSetSum(G, k)

T<--MST(G)

w <-- 0

ForEach edge of T.Edges() do

w <- w + weight(edge)

S<-new empty sequence

S.insertLast(8)

If w <= k then

return (S, 8, 8)

Else

return (S, 2, 2)

Algorithm ShrotestPath2MST(G,k)

G1 <- new Empty Graph()

G1.insertVertex("A")

G1.insertVertex("B")

G1.insertVertex("C")

G1.insertEdge(A,B,2)

G1.insertEdge(B,C,3)

G1.insertEdge(A,C,1)

T<-ShortestPathBFS(G)

w<-- 0

ForEach edge of T.Edges() do

w <- w + weight(edge)

if w <= k then

return (G1, 1)

else

return (G1,5)