

Name: Md Habibur Rony  
Student ID: 984582  
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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)
```