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Weekday: Week 4- Day 16

Answer to the Q. No. R-13.1:

No, he has not proved p=NP. So, to prove P=NP, he has to show one of the followings

- L is an NPC problem or M is reducible to L
- L is an NPH problem.

If he is able to prove any of the above and all NP problems can be reduced to L which can be solved in polynomial time then he will be able to prove P=NP.

Answer to the Q. No. R-13.3:

```
Algorithm SAT2SubSetSum (S)
        R<- new Empty List
        R.Insert(5)

        if CheckBoolGate(S)= true then
                return (R, 5, 5)
        else
                retun (R, 2, 2)
```

We have reduced SAT to SubSetSum problems and it runs in polynomial time. SubSetSum runs in polynomial time and it is in NPH and NP. So, SAT $\in$ NPC

Answer to the Q. No. R-13.13:

```
CheckSubSetSum1(NumberSet, MinT, MaxT)
Algorithm CheckSubSetSum(NumberSet, Target)
                return (NumberSet, Target, Target)
```

{/*47+23+22+8=100; 59+40+14+17 =130*/}