Set Partition Problem : Given a set of numbers, determine if they can be partitioned into 2 subsets such that the sum of the numbers in the subsets are equal.

Subset Sum Problem: Given a set of numbers and a target number, determine if there exists a subset of the given numbers whose sum equals to the given target number.

Assuming Subset Sum problem is NP-complete, prove that the Set Partition problem is also NP-complete.

Hints:

To show that any problem A is NP-Complete, we need to show four things:

(1) there is a non-deterministic polynomial-time algorithm that solves A, i.e., A ∈ NP,

(2) any NP-Complete problem B can be reduced to A,

(3) the reduction of B to A works in polynomial time,

(4) the original problem A has a solution if and only if B has a solution.