

ID: 1705120

Name: Soham Khisa

Let, the given problem "Set Partition Problem" be A and the subset sum problem be B .

(1) A is NP. When A returns yes, as a certificate it means a given set of numbers can be partitioned into 2 subsets such that the sum of the numbers in the subsets are equal and it can be checked in polynomial time.

(2) We will reduce the Subset Sum Problem, B to the set Partition problem A .



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(3)

Let, X is the set of numbers and t is the target in B . Now we convert this X to X' such that

$X' = X \cup \{S - 2t\}$ where S is the summation of numbers in X . Thus

X is a subset of X' . ~~Now~~ ^{then} We can

ask A whether X' can be divided into two subsets such that both have the ~~equal~~ equal sum. ~~In this~~ Now the

problem ~~is reduced to~~ B is

reduced to A . Adding extra

numbers to the set X and creating X' ~~it~~ does not take more than polynomial time.

④ If ~~B~~^A returns yes for a particular target such that the remaining numbers of x' also ~~returns~~ add up to the same particular target. Then the answer is yes and otherwise no. So A has solution if and only if B has solution, As returning a solution for the problem whether sum is equal to a particular target or not is B's part.

So, A is NP-complete.