Matroid

[def]

It is an ordered pair M=(S,I) satisfying the following conditions.

[graphic matroid]

[identity]

[theorem]

(1)

(2)All maximal independent subsets in a matroid have the same size.

(3) Matroid exhibits the greedy-choice property:

Suppose that M=(S,I) is a weighted matroid with weighted function w and that S is sorted into monotonically decreasing order by weight. Let x be the first element of S such that {x} is independent, if any such x exists. If x exists, there exists an optimal subset A of A that contains x.

(4) Let M=(S,I) be any matroid. If x is an element of S that is extension of some independent subset A of S, then x is also extension of .

(5) Matroid exhibit the optimal-substructure property:

[pf]

(1)

(2)

(3)Assume that

(4)