lecture

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Definition 1 (NP-hard)**.** every problem in NP can be efficiently reduced to any other problem in np hard

max cut game: each node is a player, each player decides if they wnat to move to the other side to increase the total score

this is equal to the local search for maxcut

Definition 2. ppad complete (?), pls complete (?)

Definition 3 (pls class)**.** has 3 algos that are efficient over input size.

1. initialization
2. evaluation
3. locally opt checker - report local opt or return better

Definition 4 (pls reduction)**.** start from problem that is hard, transform into new algo in poly time, from π_1 to π_2.

w requirements,

1. every $x \in \pi_1$ maps to $A(x) \in \pi_2$
2. maps every local optimum $A(x)$ to x

if you can pls reduce max cut to a new problem and you claim to find local optimum in the new problem, then it would be a contradiction