

Celtificate: Glaph G has a zero

celtifiel: - Check if it is a skuple 3

cycle

2- Zedges = 0

Reyde

We will use Subset Sum to prove that this prob PS NPC. The weet the edges in the glaph as e, 3 meaning from Mode 1 to rocke 2 the weight is is 3. In this mannel we fall Pathe sets. We then select that subset which equavates to O. While selecting so use also see 9/ the Starting element in the Subset is the Ending element. Once we find Such a subset use then use to dud the cycle. rose edges ule find a subset sum whose target Value is O use authen able to find the semple cycle in G. ule find a sample cycle en 9 ule det then use it to a Subset sum. Thus zero cereget

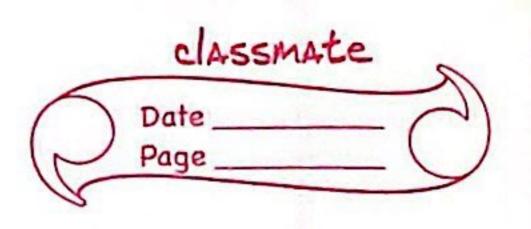
one peesan en voiteant 1 chil We well use set cover to so prove that this prob is M We "use the set cover's e as lest of people en mate a lest of clubs one of every member.

If we find a set cover of Size Ks

Then K = Total - Ks

clubs If we have a yes prefence of 18 et Cover then the K other subs John & the solution for Federidant Clubs problem. And if we have I redundant clubs then the other to clubs weenld form a set cover so set cover <p Roden dont Clubs Problem Certificate: Find Independent set in Cetifiel: - Check if the size of the gadependent Set - 141/2 De will use groleffendent set to & Show that Half- is & NPC.

selecting afternate nocles and not Violatting the endependent set constoaints, well will end up getters V/2 3ize reclependent set which is the solution for Half-is. Similarly if we der given an Endependent set of size 11/2 we Lion that it is a maximum size gralependent set as the no. of Veltices is even. Thus I.S < p +lay-is Estificate: No. of courses taken Certifies: - Check if the no. of coulses >K There are no two ovellapping coulses We use endependent set to prove Heat this problem is NPC. We cleate a graph such that for each going flow Vi to vi a The Interval 4; to both he courses, We assume that In has independent set ceauses tip.... tix as none of den well have overlapping



1	
	Entervals. On the other have If we
	assume that no entervals are
	overlapping then we can find an
	Rolep Cudent Set of Size to
	TARRICAL SUR 1/0, 1/0, 6 F
	and of fliele es an edge Vin Vil E E
	which to and the bottle significant
	the same slot in this well
	contraclict all assumption of
	non ovellapping kitervals. Mus
	non overlapping returals. Thus 1.8 = Hies problen.