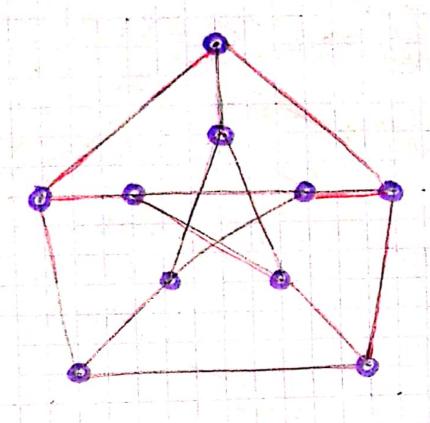
$(p \rightarrow (q \rightarrow r)) \rightarrow ((p \rightarrow r) \rightarrow (p \rightarrow \sim q))$ ~ (~p V (~q v r)) V (~(~p v~v) V (~p v~q)) (p 1~ (~qvr) V (1p1r) V (~pv~q) (p1 (q1~r)) V (p1r) V~p V~q (PAGA~r) V (PAr) V~PV~g = A > ~A= N(PAQANV)A~(PAV)APAQ (~pv~qvr) 1 (~pv~r) 1p1q CNF (b) ~pv~qvr @ NPVNY ( P) we got prof (4) q -> ~A False 6 ~pv~9 (1:2) - A satisfiable 6 ~qVY (1,3) @ ~PVY (1,4) bottom con have fun (3 ~ Y worker with the salvey (2.3) cherce dispuse 2 (2,7) } (1) ~p

2. yes forexample A=(PAgAr) -Tylliven) =~(P1911) X.T. 11 V (1) 11 1 = ~PV~qV~V (a) 4, 3, 3, L No because we have vertix with & degree 4 and we have just 4 vertices. (b) 4, 3, 3, 2, 2 yes, for example! (C) 5, 4, 4, 2, 2, 1 No, we can't because we have two vertices with theres a degree 2

peterson graph



for example  $k_2$ ,  $k_{11}$  (two component) so there are no path between them, so not always there are apath.

