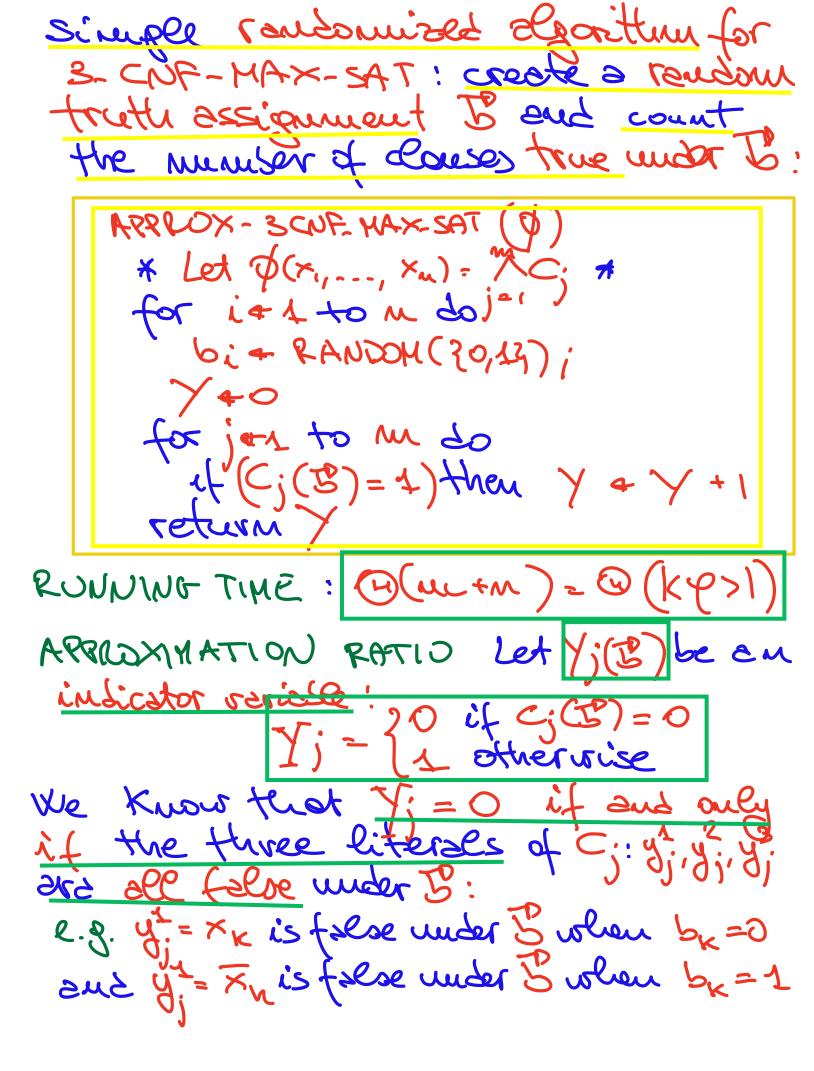
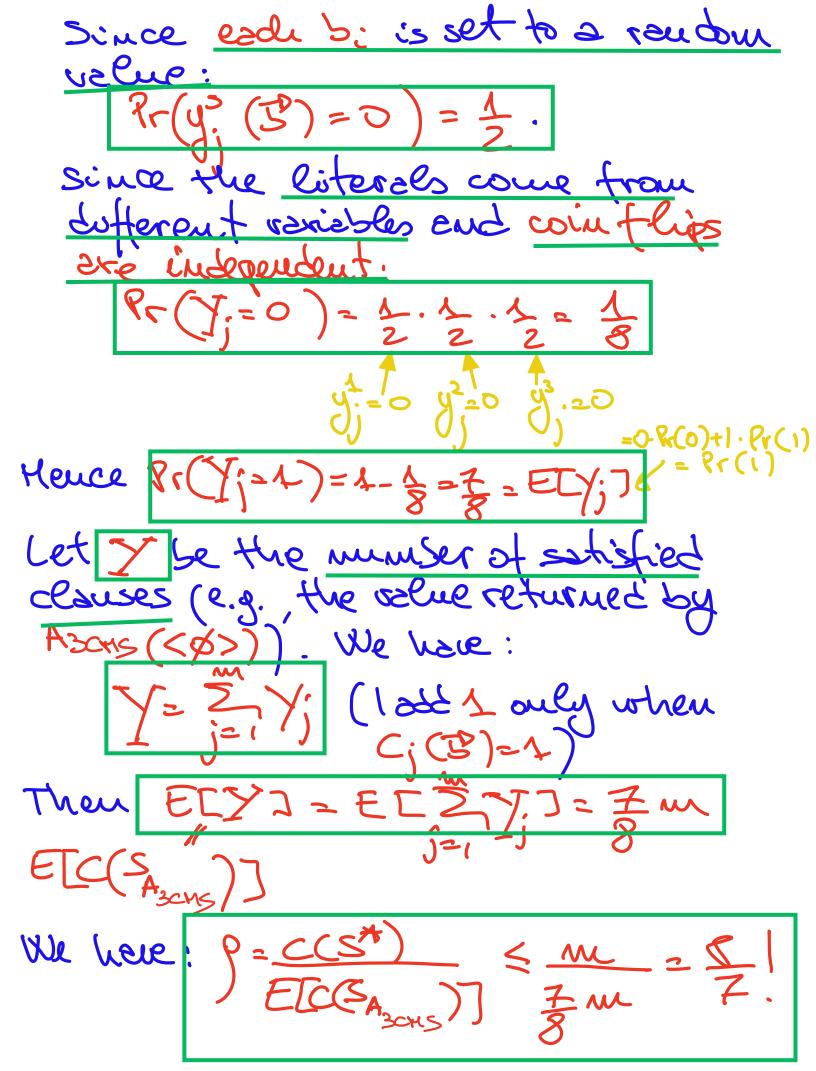
RECAP Raudomised Algorithm new instruction: PANDOK (S) - X=RANDOM(S) is a random verièble with uniform 2 tribution Ysers: Pr(X=s)= 151 - r. v's associated to different colls to RANDOM are independent - Peturnet volue, time (out even correctness) secone r. s.'s - RANDOKIZED ARRONXIHATION ALGORITHM: AK (i) returns Se S(i), 5 v.s. - approximetion ratio P(IiI) of Ar(i)=5, is defined es 9(111) = MAX { E(CCSA)), C(S*) } (C(SA))

3-CNF-SAT-related optimization problem: MAX-3-CNF-SAT J=<(P(xx, xz, ---, xm)=/ Cj> with C; = givgivgi, gi luterals at different variables (thus yk, × yk2, k, ≠ k2) Determine the maximum munder of clouds that can be satisfied by a truth assignment Bezongn DECISION VERSION 3_CNF_MAX-SAT J I:<(φ(x2, x2, ---, xm) = Λ Cj, K≤m) Q: 3 BE 20,13 sohistying > K Clearly, 3-CNF-SAT <73-CNF-MAX-SAT (f(<p(x,---xu)=1,c;>)=<p, m>) (prove correctues et reduction es en EXERCISE)





REHARK There is elso a deterministic & approximation algorithm for 3-CHF-MAX-SAT but it is much more complex!

The elgorithm is a DERANDALIZATION of Aschs yielding a deterministic 8/7-approximation

Histad in 1997 proved that there comed exist a paperoximation elgorithm for 3-CNF-HAX-SAT, with 9<8 meens P=NP

HORALE Often the power of rendomizertion allows the development of very simple and efficient algorithms!