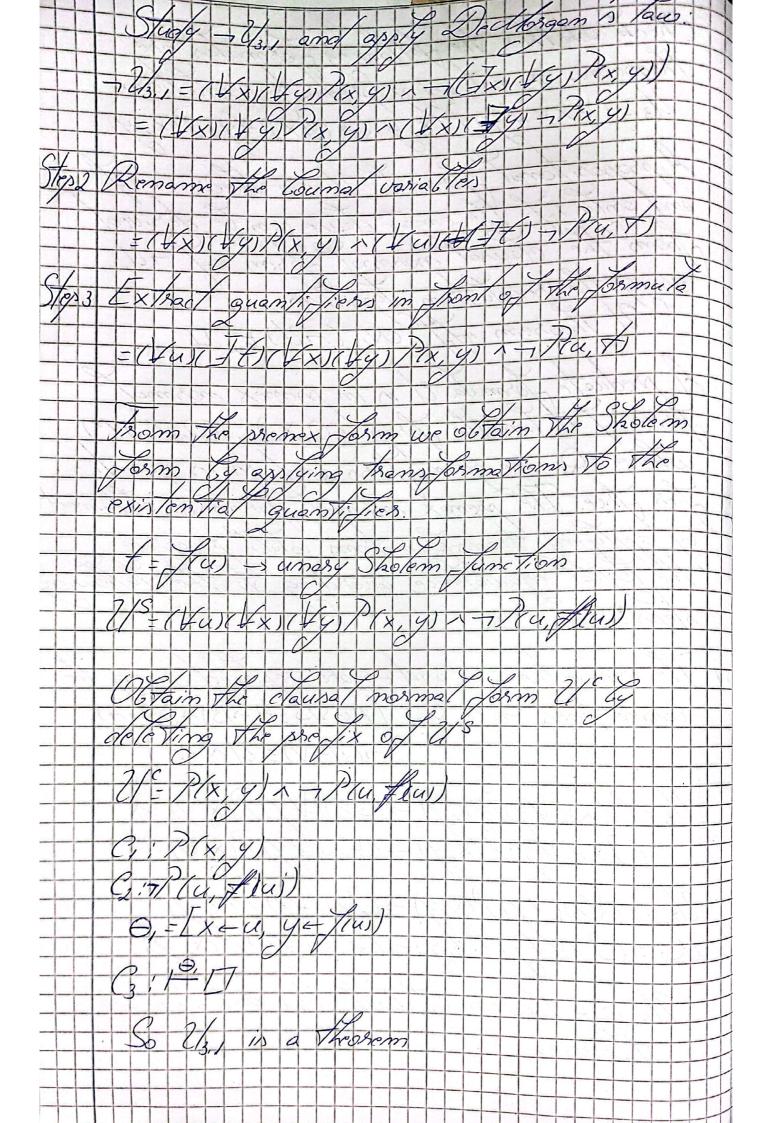
5.3. Check whether the following formulas are Theorems or not using proficate resultion U3 = (4x)(49) P(x, 4) (-> (1x)(49) P(x, 4) propositional formula U is a theorem if and only if the empt clause can be derived from the claused mormal form of Tel, using the resolution algorithm. 21 Theorem iff CNF (-121) to I predicate formula et is in prenex morma form if it has the form (Q,X1). . (QmXn)/ where Quartifiers and Mis quanti free. The premex normal form is obtained assying transformations which prosesure Posical equivalence, according to the the connectives - and es are respaced using connectives 7, 1, 4 (A+3=A+3)+(B-A) -12/-W=2/17/ 2/3 = (1×1/49)P(x, 9) -> (-1×1/49) (Jx)(19)/(x, 9) - (4x/(4y) - (HX)(49) / (X) 4) - (-1X)(49) 9) 1(x, y) - (1 x) (1 y) is a theorem if both 1/3, 1 and Theosems



We sepret the steps for 1 = (7x)(49)/(x, 4) 17(HX)(44) = (1x/19/2x/5) + (1x/19/2x/5) TXICHY /TX, Y) 1/ - JUV /TV - Pray X = (141/1/4)(9x)(49)/8x, 91 n + /64, 81 4=9 Skolem constants X = C(49)/(C,9) 17/2,6) - /(c, y) 17/8a Because a, b, c are distinct company we can do any valid substitutions so we can o Obtain an empty cause there are, (3, 1) not a theorem. 13.1 Trong not a Thoosem mot a Thoram = 14/8