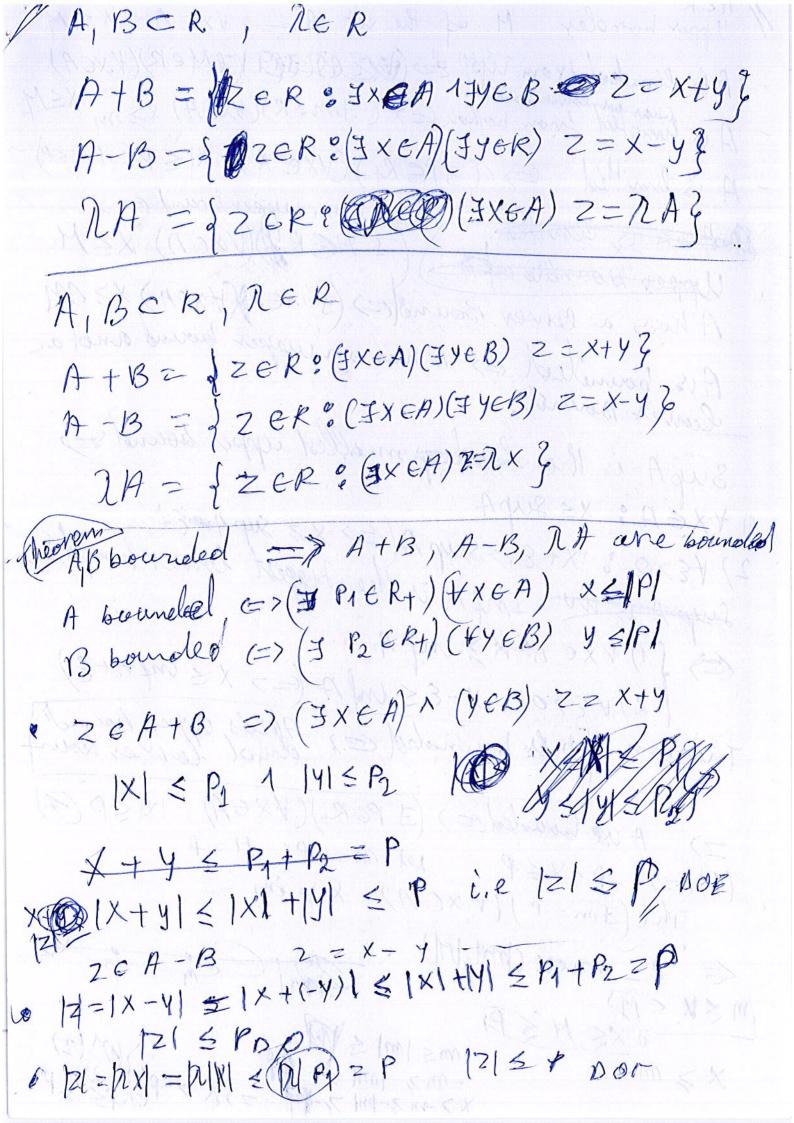
of hear and of 1 Sup A, 17,0 a) Sup IA 12 mfA, 2<0 10) proof a: * 1X & sup NA & Sup NA & Sup NA Sup And whinow that sup A is the smollest upper bound; hence, SupA < sup NA (11) (720) [2 supA < sup NA (91) OFXEA: X & SUPA - 123 7X & 2 XUPA = 2 2 SUPA (S on apperbound for MA. And we know that suprem XA is the Esmallert apper-bound; thus, sup MA < 7 sup A (2) (1) 1(2) => Supple = 1 supple => 1 Supt = Supt A / Supt A is on lower bound with the smalles lower bound for the supt A > an upper bound of 2A. We know that sup 2A (9) (31) 1(4) => suprA = runfA = suprA => - | X cm/A = sup NA) for 7 CD / supA/

mf 7A = SunfA, 2 20 a)
MaryoA, 720 b) Theorem do 2 a) the DX > inf RA (120) (2) inf RA => inf RA is a lower bound of A (sucosuse). We know the ment of a set is the associated biggest lowerbound, wence unf A >, unf MA 176 [Tunf A > mf MA] * * * * Monf A => nonf A is a lower bound of RA, And we know that smith is the beggest convex bound: thus, I'm RA = RinfA II. From I i II => on TAZINFAZINFAZINFA o N=0 ofx mfOA = mfdo, - 03 = 01.0 mfA=0 the opening to b) txeA [10] · 2x> wfxA = 250 < 2infrA 2) mfr is an upper bound for A. And we know that sup A is the smallest upper bound, thus, sup A & confra 2 M Sup A > confra (11) bound for 2A. [mf 2A > 18up A](1V) From (\$11)1(1V) [m/7.4=7.8up]



1 upper borroler M of the set A => #XEA: X = M - A is limited from the 22> (DED) (#MER)(YXCA) - A is lime few from bother (=> (I me R) (txe A) x> m - A is limitled (>) (FRER+) (HXEA) (XISP(GIPEXSP) Hoper bound to come (TIMER) (VXCA) X 2 M Ahors a lewer Bound(2) (I mer) (+xen), x> m Als boundled (=> A has an upper bound and an leaver Bound. SupA is the leasing smallest upper bound = 2) 4820 ° X+87 Sup A(E) X7 Sup A=8)
Sup A is the biggest lower bounds 11 tx & A: X & SUPA E) f1) +xe A! X> inf A (2)4870: X-E < MA (=> X < MA+E) Theorem (& Bo bounded () Alisa's upper bound => A use bounded (=) (I PGR+)(+XEA) IXI < D(A) (1) (=7 -P = X \le P , M = -P; M = P The (Jm=P) (+XGA) X7 m E P = max (m1,M) Can P m < x < M m = 10m = 10 X > m

sup RA = } MesupA, RZP Supo = 800 sup A = 0 X & SUPA ES RX Quy A) C= 7 X & Sup A + XC A => SUPAB on upperbag SUPA is the completed upper found their SUPA SUPA () 28 M/A & Supa I supA is on upper bound of IA but sup of set is the smaller up bound Sup thus sup RA & 2 sup A => XO TrupA = 8 up RA is one AX & SUP XA = 2) X < SUP RA => Scup A < sup RA px = -91 2 sup A => Sup At = sup Aces > A Sup At = 2 Sup At = 2 Sup At = 2 Sup At

1/ Neoven 1 Imp(A+B) > ImfA+ InfB 2) Sup (A+B) < SupA + SupB Proof ZEATBO IXEAN TYEB Z=X+Y $x \in A$ $x \ge cnf A$ =, $x + y \ge banf A + linfB$ $y \in B$ $y \ge rnf B$ $z \ge cnf A + inf B$ (4ZCA+B)ZZnfA+mfB=> IMPH + InfB is on lower bound of A+B But inf of a given set is alway & any lower bound this mf(A+B) and A+ mfB il. with enf C > formy lower Bound of C lower we will infis the biggest lower borner 2) Amoleg + x & sup & G => x + y & sup A + Styles 2 L Grup A + Sup B) - on supper bound But Sup C is the smalles cypses sound Thus (sup(A+B) 5 SupA+SupB)