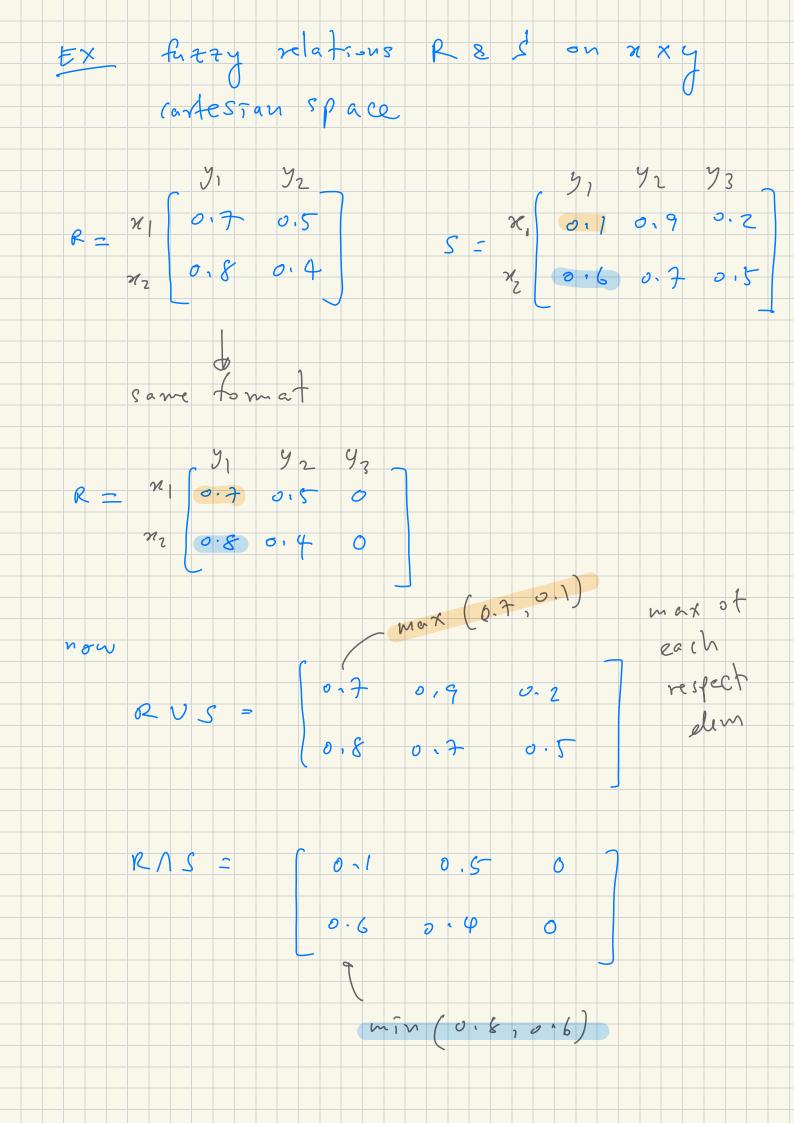
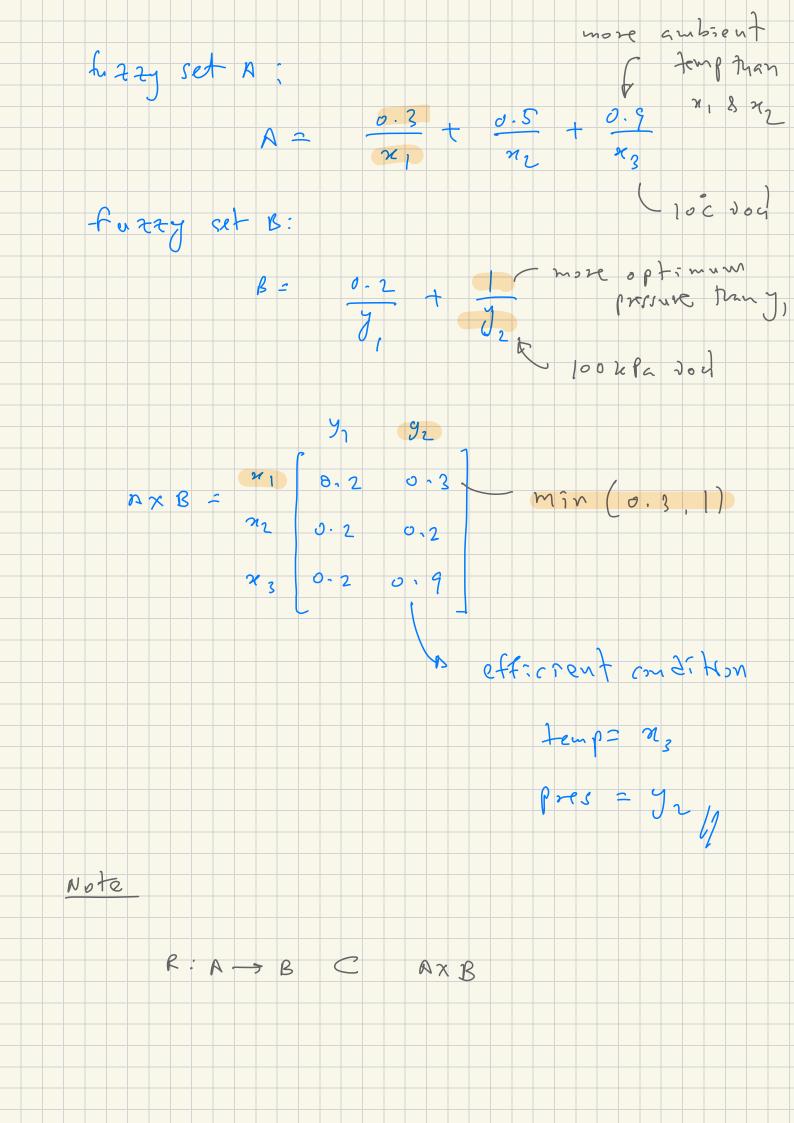
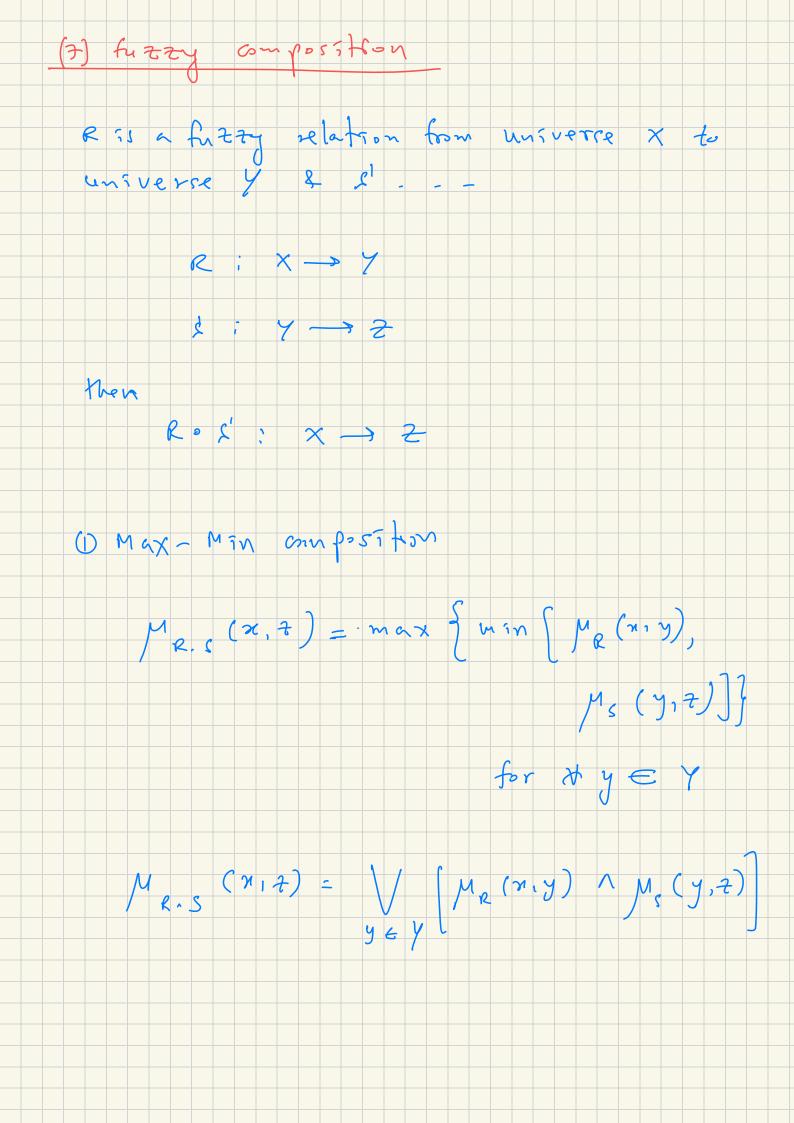
(b) fuzzy relations & operations - fuzzy relatrons - sperations on fatty relations - Cartessan products fuzzy relations various ægree of relationship from
"Completely related" to "not related" blun to or more sets fuzzy relation R; napping from certessian space x x y
to be interval [0, 1], where shength of mapping is expressed by mem. for Mr. (N.y) of the relation 2, 2/ 1, 2/2, x

Frzzy relation operations two fuzzy relations Red defined in MMISM MRUS (21,4) = max [M (21,4), MS (21,4)] intersection R ns - $M_{RNS}(x,y) = min \left[M_{R}(x,y), M_{S}(x,y)\right]$ complement M (n,y) = 1 - M (n,y) Contaminent RCS-A MR (x,y) < Ms (x,y)



R = [0.3 0.5 1] 1-0.7 0:2 0:6 Frezy rartessan product A is a firty set in universe X & Bis a fuzzy set in universe y AXB -> $M = (n, y) = min \left[\mu_{p}(x), \mu_{g}(y) \right]$ EX fuzzy set A ambrent temp for a heat exchanger in univese of 3 discrete temperatures a pe set $\Rightarrow \times = \{x_1, x_2, x_3\}$ fuzzy ret B ex (hanger in universe of 2 discrete pressures B Y = } 91, J 2 universe





2) Max - product composition Mr.s (n, 2) = max [/2 (n, y) · Ms (y, 2)] x y e y $M_{R-S}(x, 2) = V \left[\mu_R(x, y) \cdot \mu_S(y, 2) \right]$ FX Consider 3 universes, $X = \{ m, m_2 \}$ $Y = \{ y, y_2 \}$ $Z = \{ 2, 2, 3 \}$ Jen hu relations Ron X x y and & on Y x 2 are in he $\frac{2}{3}$ $\frac{2}$ R= 1/2 (0.8 0.4)

