D	
3	
3	
	Thornon-employ set 5 c 13° and positive real number v ex
2	Y > 0 defre set Sasflaw:
9	YS := { 2 6 18 1 2 = YX, X 6 5 }
0	TX is suplitipheaton of vector X EIR" by sailor Y EIR.
0	is set of all points by nutiphying i with years x es
0	13.13 set all politis of hypering.
10	prove if s is convex, then is is convex set an well
9	prove 14 3 18 cannot, then 43 13 conjugate as well
10	1 1 1 2 100 2 1 1 2 2 3 1 1 1 2 7
9	A set S C IR is conex of Yx, ig e S, Y te EO, 17
.0	5.t. (1-X) x + 1 = 2 E 5
9	
9	Assume 5 is convex, then
9	a non-early set
	15 = 30 1 2 = 1x , x E S 50 1 50 11 13
9	correx then
	= U-AX+ty=1XXES VS is also correx set
0	=======================================
0	4) For given the run empty sets Si, Sz CR", define Si + Sz an
2	Follows: SIESE EZER I 3 x E Si, 3y E Sz sit. E = x + 43
0	a) 31 = E(x1, x2) ER2    x1-1 =12  x2-2  ≤15 sketch 51 + 52
0	552 = E(X1, R) ER2     X1/52 &   X2/51
0	6-1
	1x1-11=1 = 1= x1-1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1
0	D   X2-1/21 - 1/2   2/2
	1M-M-1 - 1 = 15 (2) 4 (2) 5 (1)
	And a second of the second of
	And 51452 = -2 = X1 = 4 for X1 11 0 = X2 = 4 for X2
	The Marie and Ma
	- 51+52
	5
	x2-2
30	X X X X X X X X X X X X X X X X X X X
-	7 -1 0 XZ = 0

b) Is it true Si + Sz must be convex for only non emply cover sus SI, SZ in R"? [ This problem is independent from a), or SI ad 52 one arbitrary convocsets ] Let SI be arbitrary convex set let SZ be orbitrary convex set A set S is comex if. AXIGES ASELO, 1] such that (1-X) x + 2 = 2 E S So SI comex = (1-1) x + 2y = ≥ € SI 52 correx = (1-1) 1 + 2 = 17 E 52 51+52 = (1-NX+ 3+ EU-NQ+ 3) = c este 7-17+27+ 1-12+ N-12+ N-2 ESIFS2 let a = (xtu) B = (4+3) => (1-1) = + 1b = = = es, + sz so sits 2 must be convex for any non-empty convex sets si and sz.