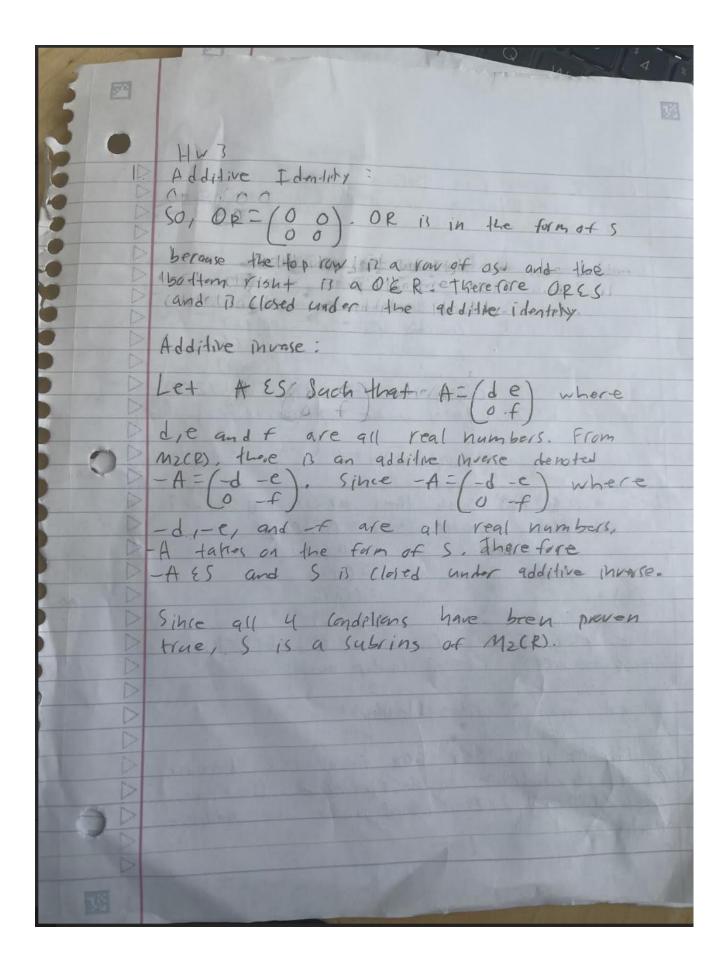
Hw?

show that the set of matrices,

s= s(a b) la,b,cer of a sabring of 000 M2(4) ve: (Ided under Addition: Let A and BES such that A=(de) and 13= (2 h) where dieifinity and i are all real numbers. Consider AtB= { de } + (9 h)

= { d+g e+h}
0+0 f+5) Since AtB= (d+9 e+4) where d+s, e+4, and fis are all real numbers, A+B takes on the form of s Therefore AtBES and Sis closed under addition. Closed under multiplication: Let A and BES such that Ai(de) and Bi(sh) where dieffish and spare all real numbers consider AB=(de)(gh)=(dg eh) Since AB=(dgeh) where dg, eh, and fs are 911 real numbers. AD takes on the farm of S. Therefore ABES and S 17 closed under multiplication.



Let R be a (Ms. Define the ZCR) by Z(R) = [ac R larzra for all rer3. Prove that ZCR) is a subling of R. Closed under Addition: Let a, b & 2(R) such that arra and lore 16 for all reR. (ansider (a+b)r - artbr = ra+rb = (ca+6) Since (atb) (= r(a+6) for all rER, a+582(x). Therefore 2(8) is closed under addition. Closed under multiplication. Let a, b {2(x) such that arera and brerb for all rek. Consider (ab) = a(b) = a(1) = (ab) = = a(16) = (ar) b = (ra)b Since (ab) (= 1(ab) for all rER, absize). Therefore 2(1) 13 (losed under multiplication. Closed under Additive Identity. Consider OR, SO, ORY-TOR FOR All TER because DR TS (Commetative) in the ring of R. Therefore OR EZCR) and 20R) is closed under the additive

