#15 500

(a) =

(b) F dim rangeT = dim mull T = 5

(c) Tu= Au, Tv= uv, Tutu= xu+uv= c(u+v) 假设 x + u,则有 u 与 v 获 => (x-c) u + lu-c) v = 0 => x = c, u = c

》一入二从,矛盾!

女人=ル

构造TV - UXV心: TW= (W, V+U), 類 V=W+V, WEU, VEV-U

假股存在下单,则有dim milT=o

·· dim rangeT = dimV = dimW = dimV > dimW 矛盾!

#2. UEV, u= a,v,t ... + anvn RU TLUS a.TVI+ ... + anTVn=a, SVI+ ... + a, SVn= S(u)

:: T=S

#3. (四)罗,加法,教乘 封闭

(b) dim U,= 3, dim U2=6 U, NU2 = [888] = 70,002.

dimU, + dim O2 = 9 = dim 123x3. HAER3x3 = A= U,+U, U, €U, U, €U

2, 30, P3×3 € U, +U2. $\therefore \frac{U_1 \oplus U_2}{V_1 \oplus V_2} = U_1 + U_2.$

 $\therefore \mathcal{R}^{3\times 3} = \mathcal{O}_1 \oplus \mathcal{O}_2.$

100 mm 100 200 1

My=1, Nx=204-1

#4 ==

#5. (a) 零,加法,教乘.

(b) =>: 若椒eV,则有打2)= a.+2a,+4a,+4a,+16a,=0 1 tu= th) => 20,+204=0

0= (I-[](I+]

中的特色图 SAIS和 SAMS和

MA SIA 自動物を含む、

MASMO 高品計算る

.工家村前

:. [ao, ..., au] = NU) = note to (soft) A mile + (soft) A mile ... =7A3

会号[a,--,ay) T∈N(A) 观有(2)=0月(1)= 11-1) · tweV. 令的

.: V的函数 ~4+ x2, -6-x+x3, -16+x4 : W dim V = 3.

#6. => 答是V的份射建,则A: 四日·叶山.

V. WEA, 別首 EVER+U, W= a+U2

:. AV+ (1-x)= 2 (0+41,)+ (1-x)++12) = a+ [24,+(1-x)u2] = a+(.

AR 3 WKY) +VA.

三成文.

会:若∀V,WEA, XEF, XV+DXWEA,

·A>BE: 到版A: .. AV+ (1-2) W= 2[x+ (1-2) (1-2) [a+(w-a)] = a+ [2(va)+(1-2) (w-a)] EA 没しる= {ソハイル) (ハーベ) トロン ハハル)

#6

←: 若bu.weA. AEF,都有 XV+(I-X)WEA,

·: A非经.

·老Arfor PO A实然是否配为集 : 3 x EA, iEU = [V-al VEA] ABOAD LA MA CHAS

下近U是3空间

D:XEA :: X-X=BEU :: 罗元铂

- @ U (V-a)=U, X=F, X (V-a)=(x V- (x -1)a)-a=(x V+(1-x)a)-a

 - ·! AV+(1-X) & EA P A(V-a) E U.
 - . 数乘封闭
- 3 YV, WEA, V-Q, W-Q EU (V-a)+ (W-a) = (V+W) - 2a = = 2 (V+W -a) #由@得,若验证 V+W-2α€U,则只需证 些-a∈U. RPOT VEW EA.
 - ·: XVA (FX)WEA, 至X=主, N首 YW EA.
 - : YW-20EU, VHW-20EU
 - **氏性长成:**:
- 二. U是接向
- ·· A= a+U是的射线
- 》:若A是份射子集,则A=a+U,U是路间 YV.WEA, 有比 atu, W= atu,
 - U+ M= [() + () EPAUL (HA)WEA.

祭上, (今)

#8.

-1 L3=I

·: (T+I)(T-I)=0

设M(T)=A, 即有A+I)(A-I)=Onxnc

.'. rank (A+I) + rank (A-I) ≤n

.: dim N (A+I) + dim N (A-I) Z 2n-n=n

: A的特征值 GM2和 > AM2和

又:每个特征值 GM < AM

·· 只有与个時征值 GM= AM

· · A可采用化

八丁阿对角化

一个一个一个一个

-4+x3, -6-x+x3, -16+x4

· U+6 - 10 = A 100 \$1616

JOHN TENIA)

(mt = (ut 1000)