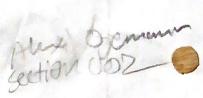
## Hamework 10



49!1.6.21.0>21.1=0.41.0>2.2.1.1>=370 49!1.6.21.0>21.1=370 49!1.6.21.0>21.1=3>0 49!1.6.21.0>21.1=3>0 49!1.6.21.1>=370 49!1.6.21.1>=370 49!1.6.21.1>=370 49!1.6.21.1>=370<-1,3,5x<1,-1,1>=0<-1,3,9>.<2,1,1>=5≠0 V= only d. <110=1<1,-1,-1>=0 <1,07<3,-2,4>=1+0 6-222 > 1 (1-1-17=-6+0 . <2-13>1<1,-1,-1=670 <-1,3,4>=1,-1,-1>=-8ED <1,1,0x-3,3,-1>=0<1,1,0>-<1,-1,0>=0 V K-2,22 2633-17=2 +0 <2,-1,3>x-3,3+>=-6+0 CA, 3, 4×3,3,1>=8 £0 3, a. y.=v,=<1,-1,2,12 yz= <2,10,1>- <1,-1,2,1><2,1,0,-1> < ,-1,2,1> = <2,10,-1>

Projection = <1,-1,2,1><1,2,-1,2>= (2,10,-1) / (1,2,1)= (2,10,1)= U=<1,1,1,0> (con be anywhere a+d+b=0) Projection vector=<1,1,0×1,7,12>21,1,0>= (2/3,2/3/4,0)

7.20.1.2v.W1+2v2W2+VsW3 2(1)(-1/15) +2(1)(43)+1(1/16) <- 40,1/15,45 >= (-1/3,1/3)/ 11. [V, V2 V3/2 W. Wy V, Ve V3][2W;-W2] -W, +2W2-W3 - Wzt Zwg 2114-W2V2-VW, +2W2V2-W3V2-W2V3+2W3V3 2(1)-46)-(1)(46)-(1)(46)+2(1)(46)-(1)(46)+3(1)(46) <0,0,0> 7.26, i. ZVIN, + ZVEWZ+VSW3  $\frac{2(1)(1)}{2(1)(1)} + \frac{2(1)(1)}{2(1)(1)} + \frac{2(1)(1)}{2(1)(2)} + \frac{2(1)(1)(1)}{2(1)(2)} + \frac{2(1)(1)(1)}{2(1)(1)} + \frac{2(1)(1)(1)}{2(1)(1)} + \frac{2(1)(1)(1)}{2(1)} + \frac{2(1)(1)($ 2(1X1)-(1X1)

FIT 12 a. Let u = <3-1,1> W= spam & u.3 W= span & v: V & IR3 and <4,v>=03 If v=<x,y,z>, then we have to y=1 V=<0,1,1> cuse 2: X=1,2=0 VC21,3,0> V, V2 E W hence V, and vz Sporn W+ 13= dm W +dim Wt dm N=1 50 dim W= Z C. u= <1,33= v= (2,5,67 V= 2u so dim =1 4---24-32 cuse 11 4=12=0 W/=<-2,1,0> rosez: 201 y=0 W2 = <-3,107 W1, W2 E WT W, and W2 Espan FAT B = dim W+ dim WT dim W= 1 So dim W7=2 x=-2 y=2 W= = 1,1,0> < 1,0) > < -1,11> > Z100>= 1/3< 11,0>+ 1/3<1,01>-1/3<-1,11>

29, or, i. Basis for range = (<1,1,0 >= 2,13>) Covarge = (2,20,1 > 0,33,2 >)Vernel =  $(2-1,1,0), < \frac{1}{3},\frac{2}{3},0,1 >$ Cokernel = (-1,1,1)ii. < 1-10 > 1 = -1-1,1 > = 0 < 2,1,3 > 2-1-1,1 > = 0|1| < |20| > < 2 - |10 > = 0 | < |20| > < 2 - |10 > = 0 | < |20| > < |3 - 2| = 0 | < |20| > < |2 - 1| = 0 | < |20| > < |2 - 1| = 0 | < |20| > < |2 - 2| = 034, b. Sustem, 2x+3y=1 -3×12y=0 A= 12 3-T 4=1x=-2

6.2.3.6.  $f(x,y)=x^2+3y^2+2x-y$  fx=2x+5y+2=0 fy=6y+5x-1=0 f0x+25y+10=0 -10x+12y-2-0 13y=-12 4=3x/609-5x-1x2-62=0 (bd<4)= - 0