

for the cat of fur dies 2(g) - modules for the cut

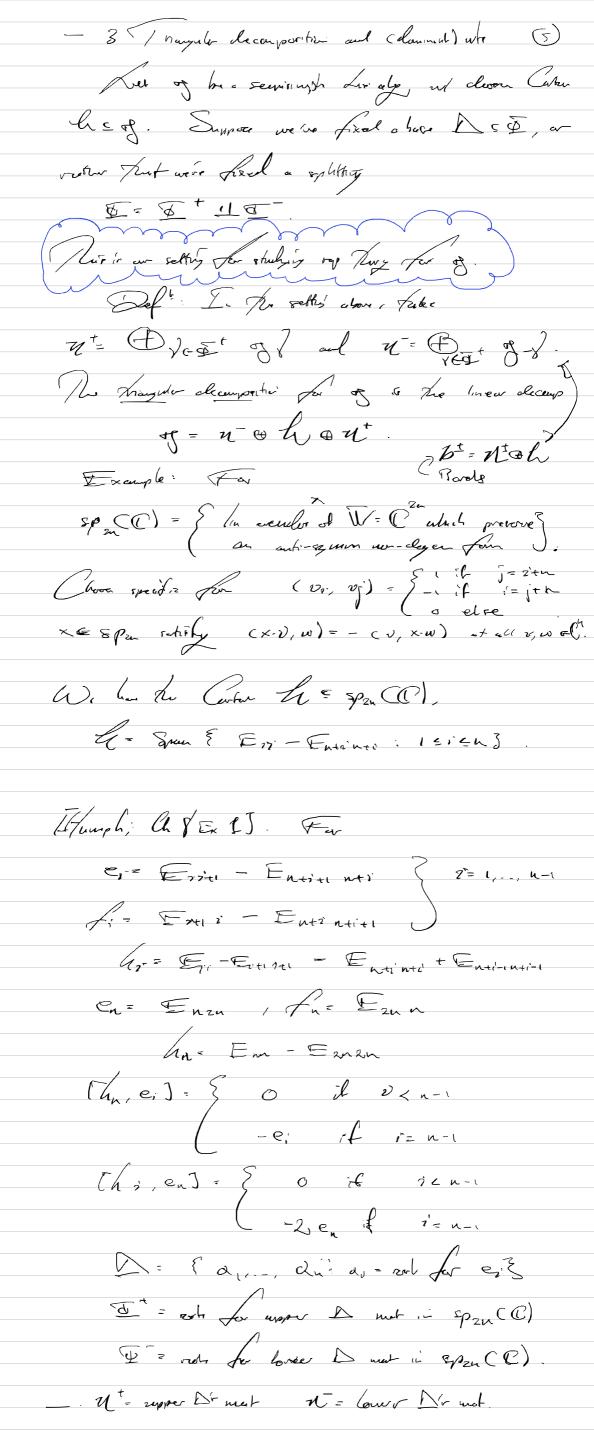
of g-reps. Prof: Sine were alread sovered fully fuit, need only est. errendal rugeching. But, by Lemm. !! , ale meyo och ! Ilion - Free (M) are precisely he came hing as fre aly mayor Bu! J - gl(M) So we are the ver; or is fail a hijechoi a object. from for proof (frame (1) we see The the cals Eligand and Junel are espectally The search Thing , and we'll treat for as interchangelile. Pren: reproof so not the same thing as Elegand. - 12 Acrola : Aly goory repr Ten summingto of clefn Rep(oj):= { The cal of 5-moleter Integrable of reps (run over all subreps in V. Me have Rep (0) = Il (0) - musl.

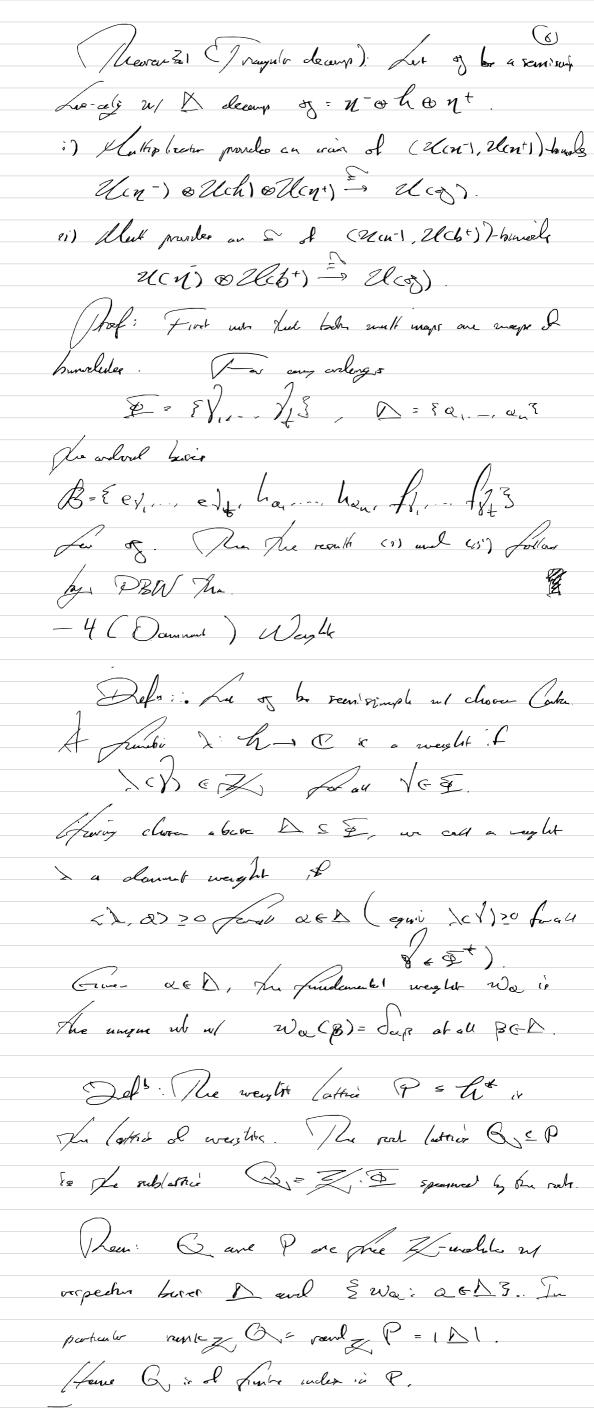
July

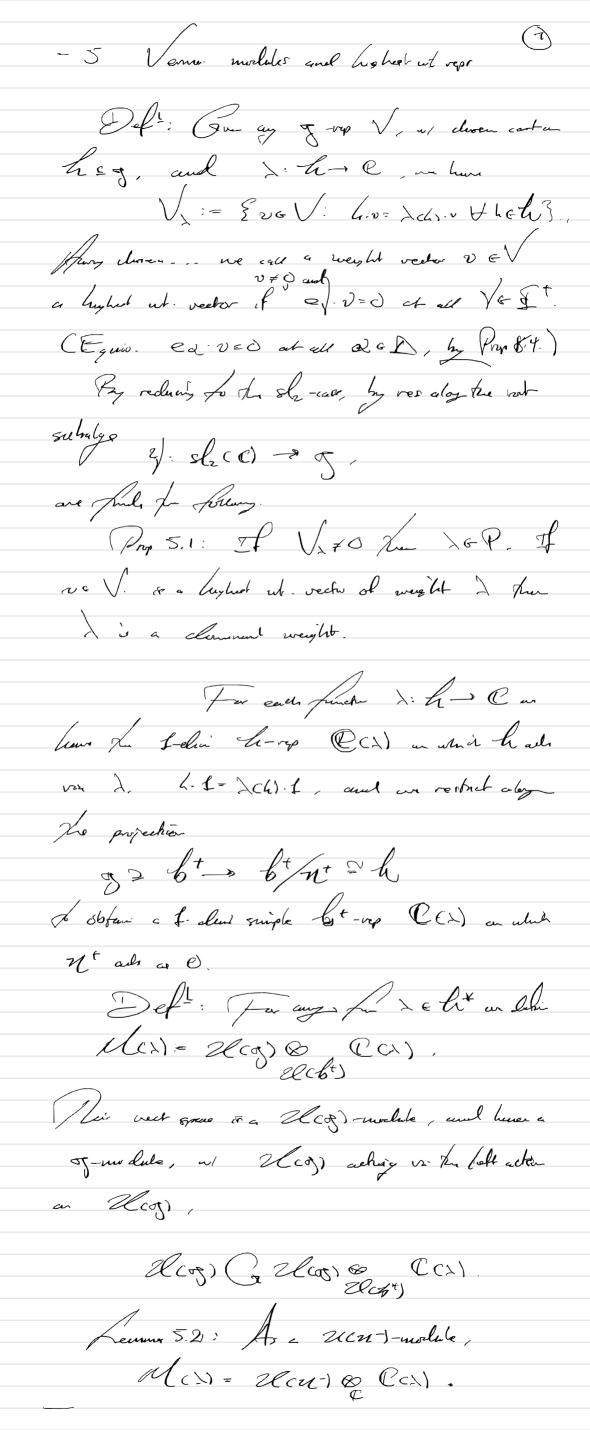
Let & be seminary of C.

Men & a remove seminary of simply-count, dy grup G ut his G = 03. For the group in han Rep (G) = Rep (og) Int. The or where rep try huppens [set Eleof)-wal] - 2 DBW Theorem (Meeven (Ado) Every fir len hie cely cover an aly closed field of cher D) actuado a fintal very V. (flue (PBW): Let of be an arts trung har rely. i) The natural may riging - 2000) or injective. To any choire of ordered barch 5x, x, 3 in of, The collection of and moramide $\{x_1, \dots, x_n : u_1 \ge 0\}$

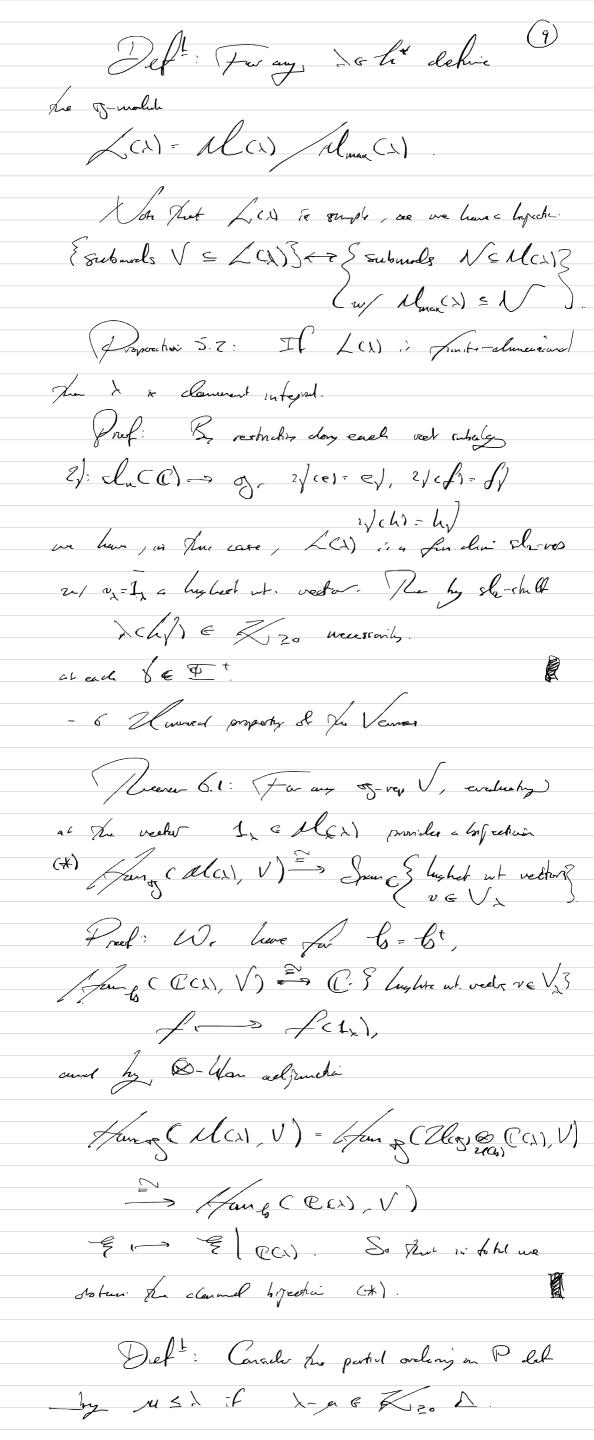
Prof: (a) For any faithful of-ver V me Com the ing he ale map gr: of or glav) = Felle (U) ho while the provider on also may Els: Zlog) - Fred (U) ul p = 2ls dig, by Lemma 1.1. Since & it injeche, up conclude je je réjecture. (ii) Tab. B= Ex. ... X.S. Define (A) n = Spun & g. ... ym; m = n, yr = 0 3+01. and deg (a): min En: a & Eligin 3 for any at Elogi. By extends (meanly we see Elegia = Spangxi xin xin msu, xi eff 3 + C. L We have Mig) = P and suppose now Mog) = Spune (x1...xn; Z'm; si3 for each n' < n. The for an arbibrary ely u morand a= × x - × in we have a= x+ a' = x+ Cm · x, · · x n = C × × × (· · ×) ut to Zrien-1. So after to du $\times_t \times_{i} - \times_t - \times_u$ $\sum_{i=u < t} r_i = u < t$ is in the span of the x. .. xu, Suicu. We have x+x, -. x, = [x+, x, -x+-] x+ -x, + x -- x +-- x h = x, ... x + ... x + ... x ... (x, x) ... x € x 1... x + 2 (ag) n-1 5 desired sum. So we conducte by inclusion Elcy) = Sper Easlerd mounds? The most their ordered energiat are linear, integravlant ir hard, and I know I no infectic argument. S of Seek on 17.43.

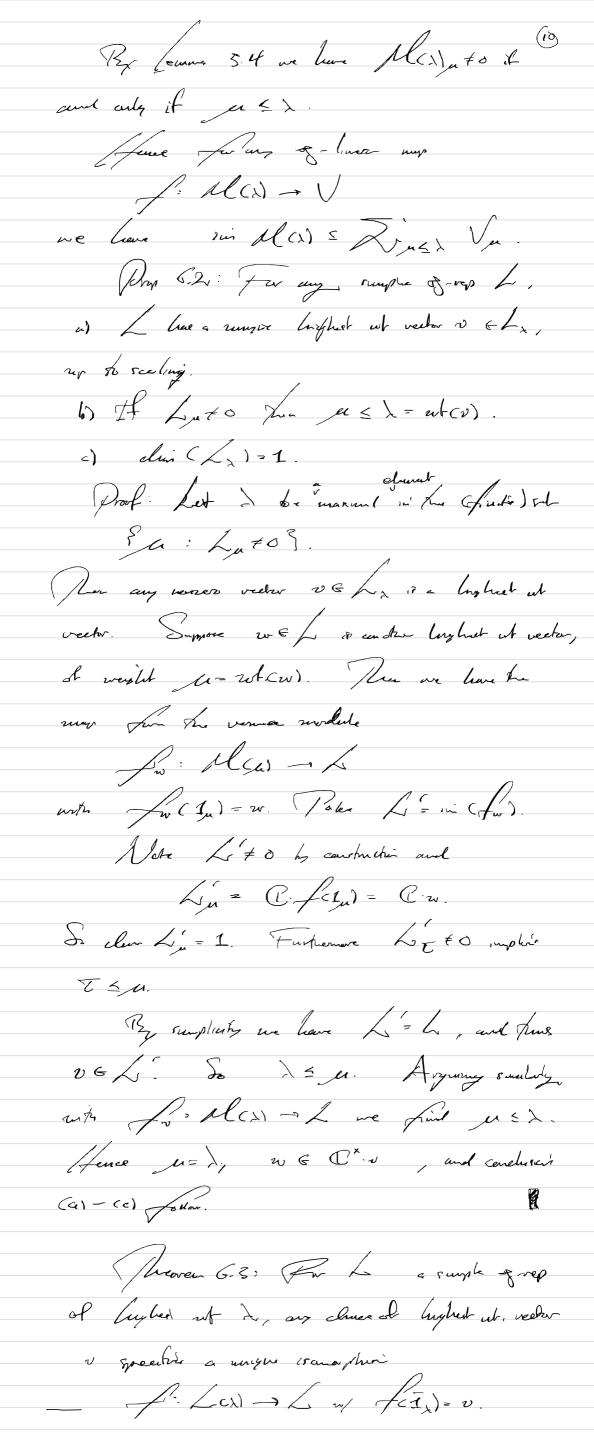






Groof: We have Mig) - Min-) 6 2(6) by the Transfer decomposition, a (2lcu-1, 2lcb+)-bind, MC) = May, & (C.) = Elcn) & (Elcz) & (C.)) = Elcn & (C.), vier associationed of the Donalud function. Corolling 5.2: Let & V. ... \$ = \$ + be any ordering of the positive vide. The meant provide a liner busis for Al(x) Lemme 54: M(1) of a securious to the modwhe , and for any collect of positive ords E 1, 15 3 The vector of the state of the is of weight \- \\ \mathsquare \\ \m Carolly 5.5: - hack seems rumply or any of-anhundede M'= M(x). Furture, M'= MCL) if and only if 1, E MCL) of (M') x for Proof: For summy lists over le [Exercise]. Since Mex) - P. S. by Cartley 5.3 and Lemma 5.4 am hour 1x & M' the (M) = 0. If I call the all sparaming weedons And ell. Hence MCA) & M. Carolley 5.6: For each funche 2, Mais contain a zenish maxima (5-onburdule, Max (2) [M(2) .. Prof: (Exercise)





Furthermore, for any us P+- 5 \ 7 preve exist no neneers surphoting (Ca) -/ Shof: By runs prop of vena here existic union my / ll(1)-1 w f(7)=0. By sunghish sin Cf) = La so true for K=kol) finducer an issum

f: Mai/a = 1. As May so now a sumple quotent of MCN, we have the maximum is MCN, L- Muse (X) by Corllon 5.6., and hence MCD/12=LCX). We thus dobain Le claimel somerphion. f: LCN => L. Il est , The far was rup E: LCal -> L are have $\mathcal{E}(\mathcal{I}_{\mathcal{U}})=0$ or a highest we weather of who. a. Re from 6.2 the latter count occur, so trust E(1) =0. Since Less is general by 1 m it follows from E=0, as clarind. Corly 6.4: Farmy summingle his ely of, us cluve Certe bace etc., sunple of regre are determed reg to isamorphon by their lughest wit. We Their strain an injective my of sets Imer (4) - Pt L => max > P m Lx #0. - 7 Existence Moren [H, 21,2]: For sencingly of , on Close Come etc., and domint weight > FP, The surple of melate L(x) of finte-dimensional. Necresa 7.2 [4,212] Far T/(2):= EucP: /(2),+03, The or a fint subset in P which it stable under The action of W.

In a just world, one prover 7.1 by explicitly clem. (2) anstructing a tensor generator, however, mero strucke of a technical good fur [4]. We'll only prove the structure than 7.2. hum each ea and for achty whythere fence Le ups exp (c.ex), exp(c.fx): V - V ~ well-defined line auto morphisms, at each CGC Lemma 7.3: The liner curtomer place Qu:= exp(eq) exp(fu) exp(eq): V->V sutrifie Q (Vn) = Vou(n) at each weight Prof: For each hah, va V, me han

A A a.v = A a (A a.h. A a).v, Da'h Da = exp(-aleu) exp(ad) exp(-aleu)h = expressed expressed (h+a(h) ed) = emp (-alex) (h+ a(h) fx + a ch) ex- all ha - exp (-wea) (h+ach)ex-a(h)ha) h + 2 achrea - achrha - 2 achrha The for de to and to Ve Ly. Da. v = Da (h) - Laly ha) ·v = (n(h) - <a,) n(he) . Da. 2 = (uchy) - xa, 1). in, a) . Au. v = (u - < u. a) (h) > a.v. = ouch)(4/). A.v. So A a v so of weight only , and suice Ack is an antonophism we must have Da (Va) = Vogas.

Cardley 1.4: For an finite du og vep (/cv) = PLGP: V_+0] Ec Sable under the ashe of the Week group. Prol & Treoner 7.2: Annly Cartley 7.4 Jo The con V= L(CX).