1. Big omega Notertion: prove that 9(n)=n3+zn2+4n is 121. da) >003 d(y)= 43+545+AU for finding constant cando n3+2n2 +4n2c.n3 Divide both sides with n3 1+202 + 40 ZC 1+2 + 4 20 Here 3 and 427c 42+427 example c=1/2 1+2/0+4/0221 1+2/0+4/10271 1+2/0+4/02 2/2 Thus qun)= n3+222+4n is needed 12(n3) 2. Big theta notation, determine whether hin = UAZ+30 is O(n2) or not くいっとついうと こっこ Hupper bond hend is o (n2) In lower bond him is olina) upper bond (co(n2)) h (1) 2 402+30 からかくころっと un2+3n=2c2n2z)4n2+3n <cn2 let 02=5 divide both Sides by nz 431045 nen= un2+30 is 0(02) (c2=5100=1)

400) = 405+30 is O(05) Hange 53 1+ togn 502 H - wgn 52 then him is our wagon romer poug HOW SCICULOGOS からりょうしゅつ その Wrodu to 500 rodu divide both sides by nugh H mogn × C1 4 togo zer (simplicity c1=1) togn 20 for all no pros is - or crodus (c1=1,00=1) p(n)= 0 rodu + 0 is 0 (0 rodu) some the following recurrence relation & find the order of dwamps of 20m from 1000 = 12 (015) + 05 14010 =1 let f(n)=03-20240 and g(n)-02 show whether f(n)=2 gen) is true or false 午のここと1900) substituting finising in to this inequality we get 03-202+02c(-02) A and c and no holds nzno U3 - 5 U5 +U 5 - CU5 03-505+0460550 (0350) U3 4(C-5))U54U50 U3 + C1-5) U2 +U = U3 -U5+U 50

fun=13-202+0 15-2(qun)=2(-02) .: The Statement f(n) = 12g(n) is true,

perermine whether hon)=nugn+n is ocugn) prove a vigrous broof for don concrision

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upper bound

hen) zezaloga

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divide both side by nugn

14 nogn = 2

H Logn EC2

H Logn = 2

then hon) to ochlogo).

wer bond

man 5 clu1 rogu

いらり = voduto

こしゅつナッシ こくりしゅつ

divide both sides by alogn

14 20gn 7C1

14 togn 201

10gn 20

400) is -2000000 (CC1=1,00=1)

いしい ことらろっちい あしい しのろう

T. solve the following recurrence relations and find the order of dueman of somegouston)=4+(0/2) +02 +01 =1 Lay =14(U15)4051 Lay =1 100) EAL(US) 405, L(1) E1 160) = 01 (UP)+f(U) a=4 16=2, f(1)=12 Applying master theoram 100)=0+(NP)+fe) tas = o( 100 ad a - 5) for) = 0(1 nog ba) (+nen +(1)=0(1 nog by nog n) ten = acomogo + E) unes ten) = ten) TCO) = QT (012) +02, TCO) =1 ten)=at (018)+fen) -for) =0 (nogba) then to) =0(000gba, wgn) t(1)= v(vodo ote) the two two corrotted rod Po L096a=10924=2 t(1)=12=0(12) (comparing f(n) with 109Pa) tus =0 (400 barodu) =0 (400 modu) order of growth TON = UT ((12) + 12 with TON = 1 is @ ( 12 109(1)