21/06/2029 M. Poliveddy ASSIGNMENT-11 192323056 6 Big onego notation: prove that 9(n) = n3+2n2+4n is SL (n3) 105 7 08+ 0h of 9(n) Z C.n3 g(n) = n3+ 2n2+4n for find eternats constants and no n3+2n2+4n zcn3 21 18 471 $1 + \frac{2n^2}{n^3} + \frac{4n}{n^3} = \frac{4n}{n^3}$ Divide both sides with n3 1+9+4 20 Here of and 42 approaches 0 560 20,00 CO2 \$ 084 CO3 1+26+42. example c=1/2 1016 08 \$046 4 13 6, [2] 1+2 + 4 2 2 1 (1 z1 /2 , 0 z1) 1+ 8 + 4, 21 (nz1, no=1) 1+20+402 21/2 081901100 Thus, 9(n) = n3+9 n2+4n lo indeeded 12(n3) Big theta notation: Determine wheather h(n) = 4n'13n is o (n2) or not. C12 N2 EH(n) E C N2 (0) > (0) In upper bound han) is o (n2) lower bound A(n) (s s s(n2) Shot on OnePlus Upour baoad.06.2020:26)!

h(n) = 401+30 n(n) & (, n2 40430 4602 402+30 6502 let's C1=5 Divide both sides by nx . 4+3615 h(u) = 40 0 +30 is O(u) (C=2100=1) lower bound :n(1) = 40, + 30 h(n) 7 (1 n2 402 +30 3 602 1c+15 9=4 => 412 30 Int pivide both sides by n's h(n) = 4n2+3n (c1=4, no=1) h(n) = 4n2+3n is O(n2)

(3)

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(els for) = n3 - 2 n2+ n and g (n) - n2 whow wheather f(n) = - (g(n)) is true or false and justify your answer. F(n) z (.9(n)

substating (-(n) and gen) into this inequality we get shot on OnePlus poli 1/2024206/21/20:26 (-n=)

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find cond no hols nizno
  n3 = 2n1+n z-cn2
  n3-2n1+n+cn220
                             arresta des
   n3+(c-1)n1+n20
   n3+(c-1)n2+n20 (n320)
  n3+(1-2)n2+n=n3-n2+ n20 (c=2)
 F(n) = n3 = 2 n2 + n is 12 (g(n)) = -2(-n2)
Therefore the statement for) = 12 (gen)) is and.
Determine wheather h(n) enlogn is in a (nlogn) prore a
Rigorous proof your condusion.
 cinlogn (h(n) & conlogn
 Opper bound:
  h(n) ¿ Cin logn
  h(n) = nlogn+n
 nlogn+n < Cinlogn
Divide both sides by nlogn
                   1-639,00-63,600-6013
   1+n
nlagn 12
                         (4) + (30) 100 - (4)
   1+ togn < 2
                         これをしていることから、はった
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poli 2024r06.2120:26 mplify)
                          world when gain the
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Sol

Then hand is O(nlogn) (c, =1, no=2) 1000a bound: tores or that eller henzer nlagn or far harlanda p(a)=nlogn+n 050440(1.33 660 nlogn+nz cinlogn oga salasa ne divide both sides by nlogn 180 - 0 + 0 (1-1) + 8 n 14 nlogn ZC1 5 33 0500 200 -(6.3 14 1 1090 Z C1 (Simplify) had allege stading 14 1 (c,-1) apolos s (a) de apolos Toga 20 (KFFF) for all n 71 h(n) 10 1 (nlogn) (c,=1, no=1) h(n) = nlogn+n is @(nlogn) 10. solve the following recorrence relations and find the order of growth for solutions. Trois=47 (1/2) + n', Trois=1 P(n)= 4P(n/2)+n2, P(1)=1 9(n) - a7(1/p)+f(n) a=4, b=2, f(n)=n+ Shot on One Plusher on poli 2024.06.21 20:27

$$T(n) = ar(7) + f(n)$$
 (from = o(n 10969))

 $f(n) = o(n 10969^{-1})$ (from = o(n 10969))

 $f(n) = o(n 10969)$ then $T(n) = o(n 10969 1099)$
 $f(n) = -1 (n 10969)$, then $f(n) = f(n)$

calculating 10969 :

 $10969 = 10969 + -1$
 $f(n) = o(n 1) = o(n 10969)$
 $f(n) = o(n 1) = o(n 10969)$
 $f(n) = o(n 10969 1099) = o(n 10999)$
 $o(n) = o(n 10969 1099) = o(n 10999)$
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 $o(n) = o(n 10969 1099) = o(n 10999)$