```
Big omega notation: prove that gen1=n3+2n2+unis
  9(n) 2 c. n3
                           Lactory & Line in
  9(4): 43+212+41
 for Huding constants cand no
   N3+ TUT+AU7 C'N3
  Divide born sides with n3
   Here \frac{n^2}{n} and \frac{4}{n^2} \frac{1}{2}
                       1 (0) - (0) (0) (0) (0)
  1+ = + 4 2 2 1 1 3 , and or test rest ( ( ) , ( ) )
 example c= 1/21 = (a) = (a) (a) (a) (a) (a)
 1+2/n+4/n2 2 = (13/2,021) : (300) (2001 )
 1+2/n+4/n221 (n21, n0=1)
Thus, q(n) = n3+2n2+un is indeeded of (ns)
 Big theta notation determine whetherh(n)=un+3nil
O(n2) or not
  Cin 25 h(n) 5 con2
                          ( M = 01 = 10 ) ) 11
 In upper bound h(n) toony
 In lower bound h(n) is se(n2)
 upper bound (loine))
   h(n) = 4n2 +3n
   h(n) & conz
   4n2+sn & C2n2=) 4n2+3n 5 cn 2
  164 cos
   divide both sides by nz
   4+ 3/n 55
  n(n1: 4n2 +3n; o(n4) (c2=5, n0=1)
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hlnjeunstan is ocnej
       niogn 52 (simplify)
          - 5c2 C2=2
      109n c2 (c2=21n0=2)
  Then him is o(nogn)
   Lower bound.
                     ing on a good and a state congress
    Hand & ci (niogn)
   h(n) = niogn+n
   niogn+n 2 ciniogn
  divide borasides by niogn
      niogn > CI
     1+ 10gn 2 Crimplity )
    Togn = 0 for all not
   henris se(niogn) (ci=1, no=1)
  h(n)=n10gn+niso(n10gn)
3. some the tollowing recurrence relations a find the order
 0+ 900wth 0+ solutions T(n)=4T(n/2)+n2/T(1)=1
  Let +(n1=n3-2n2+n and 9(n)-n2 show whether +(n)=1
 (9(11) is true or false.
       f(n)2(,9(4)
     substituting finitiginto this inequality we get,
   A and c and no holds no no line
   n3-2n2+n+cn20 (n320)
   n3+(1-2)n2+n=n3-n2+n30
   +(n)=n3-2n2+nis 2(9(n))=2 (-n2)
    i. The statement f(n)=1 9(n)) is true,
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4. Octermine whether h(n)=nlogn+nis o(logn) proue c
   vigorous proof for you concurson.
     Ciniogn sh scanlogn war
     upper bound
      hanscanlogu
     h(n)=niogn+n
     niogn+n & coniogn
     druide both sides by niogn.
                                      A STATE OF STATE
                                   Capenal or & Call
         niogn 5 2
                                    and sales fort
                                (1,001) 15 C 1+ 1+ 100) 1
         109 n 5 (2
                            region of the south of the south
       1 + 1
109n 52
    Then him, is olmogn)
    lower bound
    4(n) ) (m110gn
                        (1) menoral from e) in the limit
    h(n):n10gn+n
                           ( a sound of it at a sound a
    NIOSULUT CIVIOSULE STUDIOSUL DEMONITOR DEM SINI
divide botarides by niogn
 De - (14) niogn 12 Crossis de (13) to 13 de 13 garding 1
                              . - 371 (2) 10 mill 1 for
        10gn 2C1
 17/109n 20 mp sour mor of al (18) 31 m) postulation
    heni is -2 (nogn) (c1=1, no=1)
   h(n) = n 109n+n is O (n109n)
5. solve the following recourance relations or
   And the order of growth of solutions.
        T(n) = 4T(n/2) + n2 T(1)=1
        T(n1=4T(n12)+n2, T(1)=1
 501:
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T(n)= 47 (n/2)+n2, T(1)=1 T(n) = aT (n1b) + + (n) a=uib=2 if cul=nz applying master theorem, T(n)= aT(Nb)+f(n) The Zame Congress f(n)=0 (n109 a - c) t(n)= o(n 1096a), then T(n)= o(n 109 a 109n) T(n) = 1 (n 1099+6), Then T(n) = +(n) T(n)= 9T(112)+112, T(1)=1 T(n) = aT(n/b) + f(m). t(n)=0 (n109601), then T(n) =0 (n1095109n) t(n1=1 (niogoat E), then T(n) = +(n) calculating logg: (120,20) 1098 = 10924=2 +(n1=n=0 (n2) (comparing +(n1with n1099): f(n) = 0 (n 1090 109n) = 0 (n2109n) Order of growth T(u) = 4T(u12) + n2 with T(1)=1

Campost Cand found extract

150 (n2 10 gn)

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