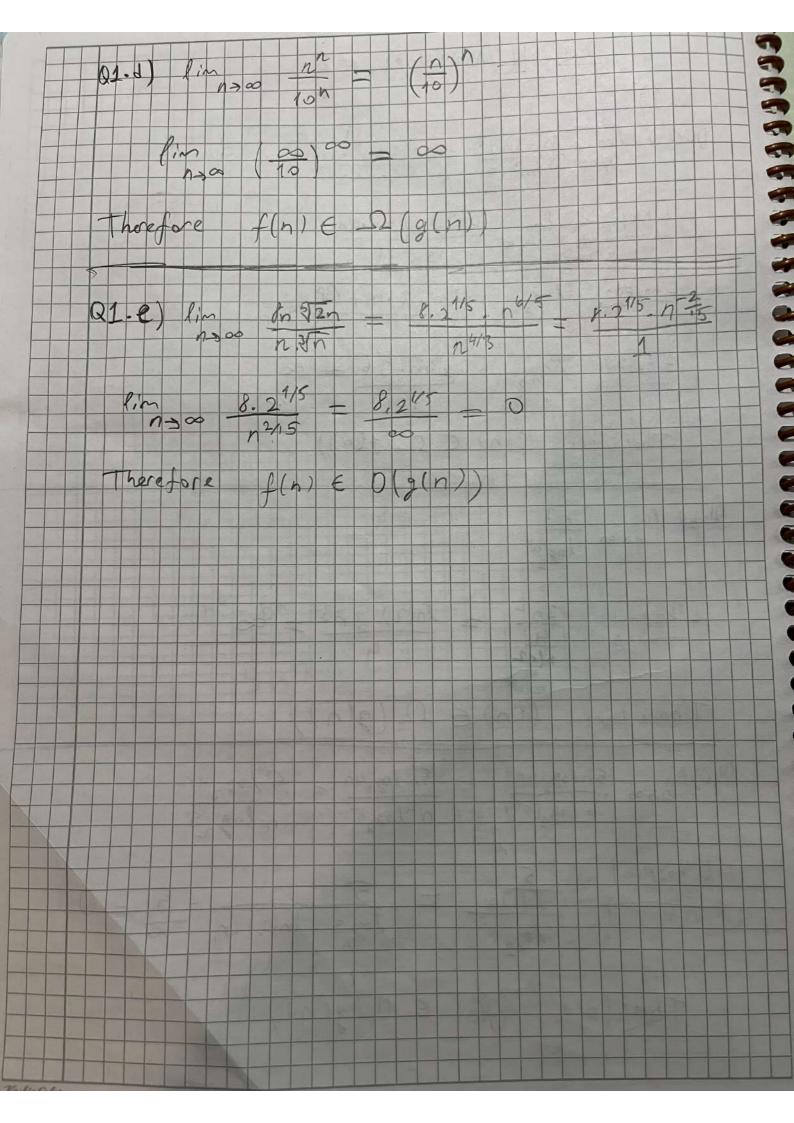
HOMEWORK #2 01) = n-6n3+9n (n²-3n) 01-01) lin 5n3+n 1-3 00 5 n3 + n Un3-18h7+18n L hospital lim 130 15n+1 12h2-34n+18 L'hospital 24n-36 -L hos Aitol 30 [(n) E a (g(n)) Therefore limaco 01.5) 1075 In(2) 3n3 302 L'hospital nenz f(n) e 12 (g(n There fore Q1. C) lim 51 log 4n 5 /02 4h 5 nlog (4n) n2/02/5 n 109, (5") L'hospita In(2)n 1095 · In/2) · n 10925 0 (g(n) f(n) 6 Therfore



MANAGEMENT OF THE PERSON OF TH Q2.01 method A iterates each element of Strang So it will run 'n' time! Therefore werst case time complexity is O(n) Q2.b) Since method A is called inside a for loop that runs intimes and nethod A is also running intimes, Line complexity of the first two line is O(n=). the second loop will run on tings therefore it is O(n) So Overall worst case the contexity is O(n2+n) = O(n2) Q2.C) there are nested loops to the first two lines, which makes O(n2) time complexity. But inside this nested loop, method B is called which we know its complexity is O(n2) . So, overall time complexity is O(n4) Q2.2) Since the loop runs infinetely, there is no possible complexity analysis for this algorithm. Q2.e) In the worst case, the empty string would be at the last position of the string. That means the long have to run 'n' times till it can break and that makes worst case time complexity O(n).

Q3.a) - max Diff (A) return A[n-1] - A[o] In an ascending array, the last element becomes the lorgest while first one becomes the smallest Therefore we just need to subtract first from last. The worst case time complexity is O(1) be course accessing elements in an array is constant time. Q3.b) · max Diff (A) MIN = ALOJ max = -9999 11 max should a very small integer for i from 0 to n-1 if ai > max max = ai if ac smin m10 = 01 return max - min · Loop iterates trough each element and it finds the min and max by comparing the correst element with the variables 'min' and max! At the end, it simply cetains the difference between most and min. Worst case time complexity is O(n) because the loop Herates n times.