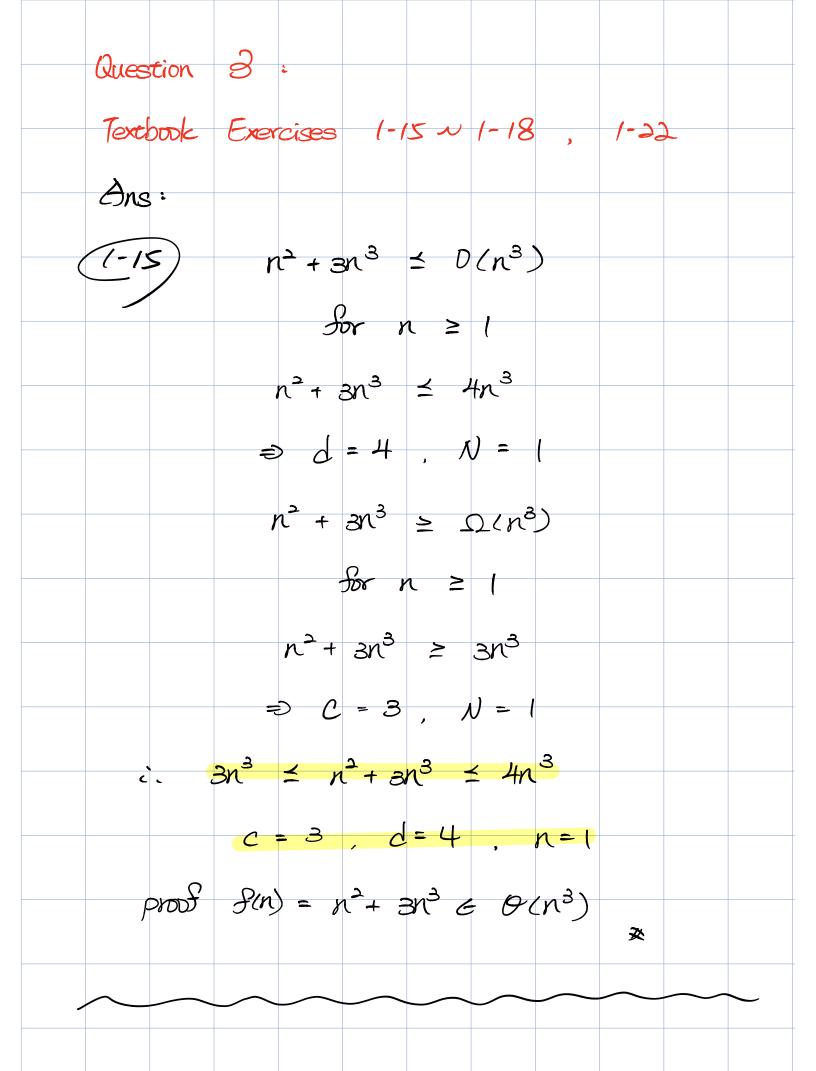
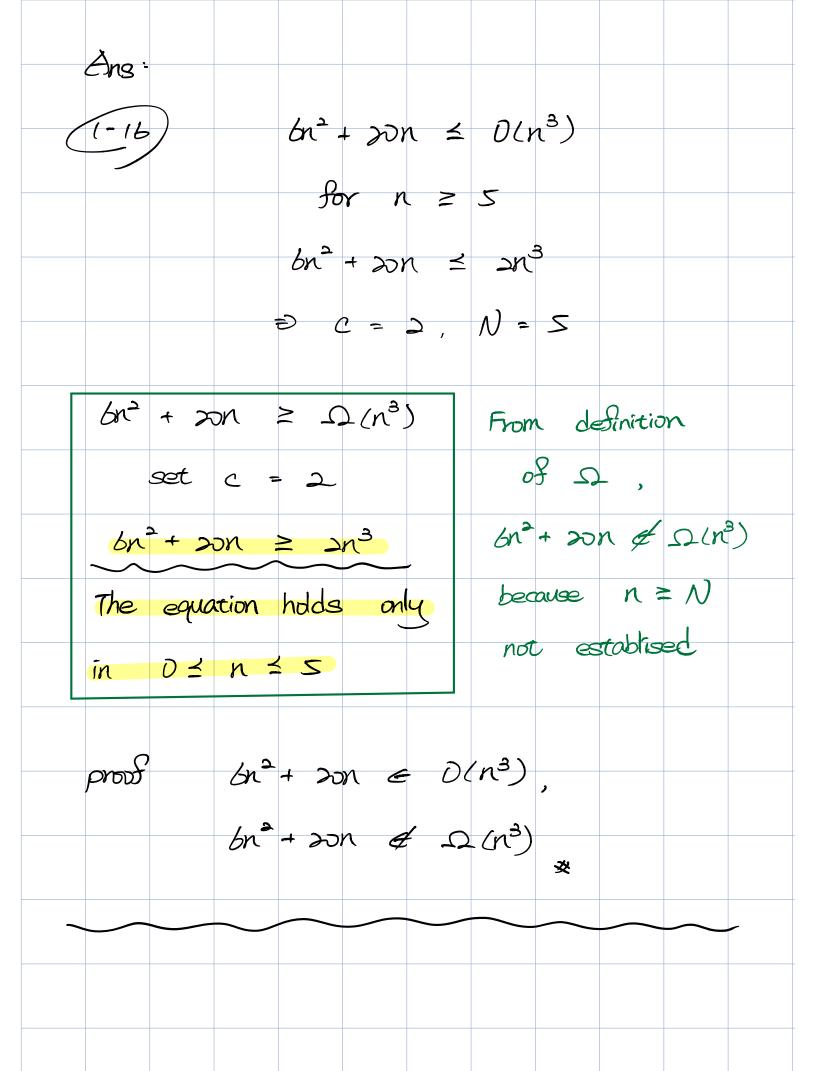


Question 2: Analyze Time Complexity For loop: gap => 2 ~ n For loop: starting point = 0 N n-gap Worst Case : O(n²) Best Case: Q(n²) Average Case: O(n2) Every Case = T(n) = n= In all situations, we need to go through the whole string to check if palindromic substrings exist. Thus, time complexity is always in n2 order of magnitude.





Ans: By using property 7., B C≥0, d>0, a(n) e o(fin) and  $h(n) \in O(f(n))$ , then  $c \times q(n) + d \times h(n) \in O(f(n))$ 5n5 + 4n4 + 6n3 + 2n2 + n+1 & O(n5) => ns + 4ns + 4n4 + 6n3 + 2n3 + n+7 & O(n5) = 1 x ns + (x (4ns + 1) & o(ns) c x q(n) + d x h(n) = 19(s(n)) proof 5n5+4n4+6n3+2n2+n+7 = 19(n5) 交

Ans: By using property 7., B C≥0, d>0,  $g(n) \in O(f(n))$  and h(n) & O(f(n)), then  $c \times q(n) + d \times h(n) \in O(f(n))$ P(n) = aknle + aknle + ... + a, n + a. E O(nk)  $c \times q(n) + d \times h(n) \in o(n^k)$ = C × nk + 5(ak - C) × nk + ak-1 nk-1 + ... + a.n. a.o ] & o (n/e) for c ≥0, (ak-c) = d > 0 proof aknk + ak-1 nk-1 + ... + akn + as & o(nk) 改

