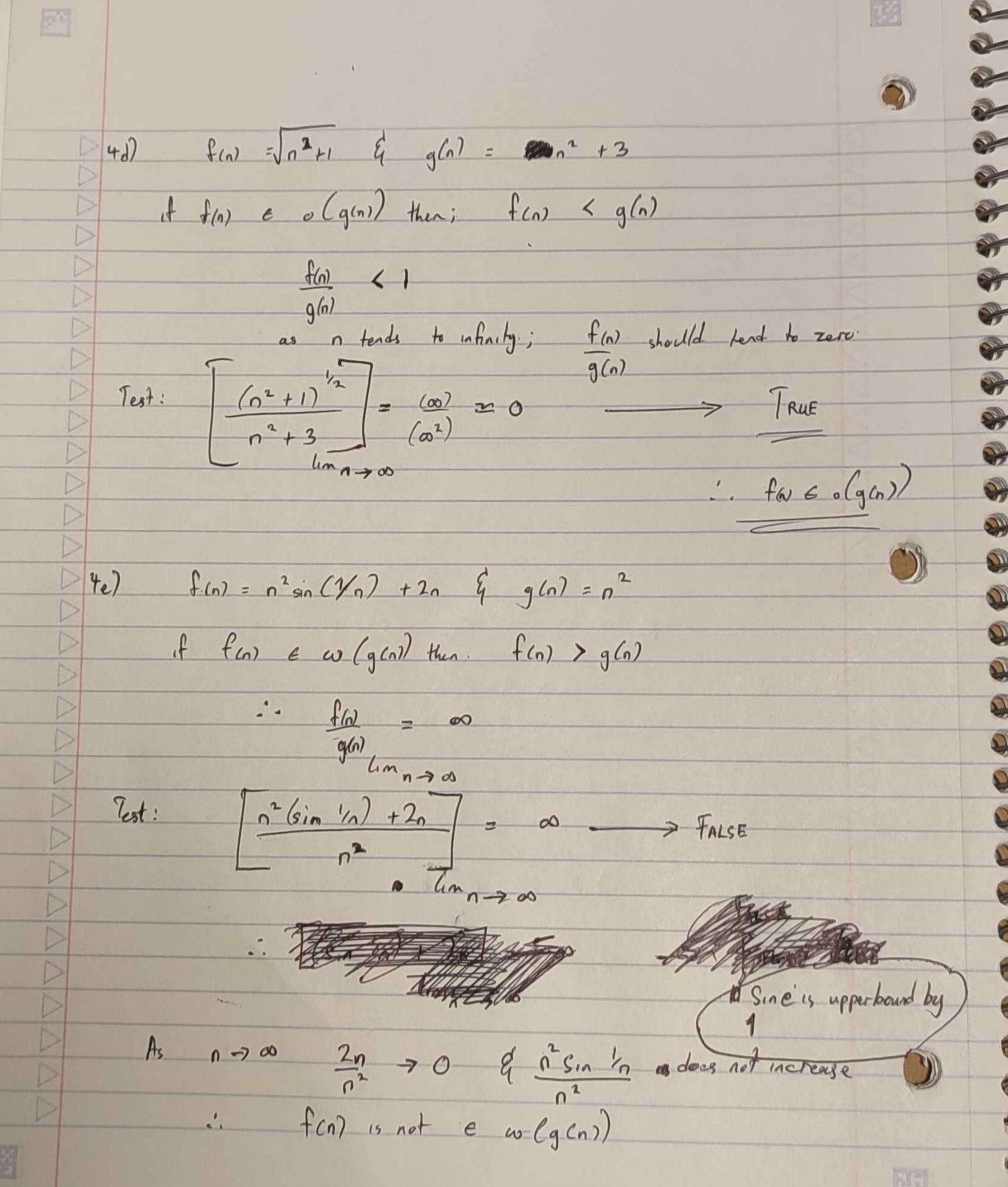
		50) The outer low "for in range (0,0) iterates of times
		5a) The outer loop "for in range (0, n)" iterates in times from 0 to "n-1" -> 0 (n)
		The inner loop runs once when i = 0 and twice when i = 1 once i = 2, the loop stops running. This is regardless of the size of n. Here the combined time complements is O(n)
E.		i = ? the 1000 stops running. This is regardless of the size of D.
100		Hence the combined time complexity is 06)
18		The continues
5		
F		There is only one loop; during which n is operated upon until the resulting n is n-5 this constant subtraction ensures that the single loop is is completed in linear time regardless of n time complexity -> O(n)
		coult a se 0-5 this constant subtraction ensures that the
100		conting is a concleted in linear time regardless of a
(4)		single loop is is conficient of a
40		Time complexing
1		
×		5c) There is one loop however in this loop is is scaled 2(i) to
		there is one way nowever in this way a gentle of the se
No.		thus the iterations are completed in Ollogin) times.
30	1	as the value of n is squared, the number of terebens doubles:
20	K	time complexity -> O (log 1)
1	1	
		5d) Here there are two loops, the outer loop runs n2 times, while the in the inner loop, j= , 1/2-7 log (n) time complexity operation. Combined, this forms O(n2 x log n) > O(n2 log n) time complexity
2		in the inner loop, j= 1/2-7 log log time complexity operation.
6		Combined, this forms O(p"x logo) > O(n2 lego) time complexity
No.	12	
10	D	Fel With each iteration i = i i grows exponentially rather than lenews so the iterations grow to become \$ 22 where K is the number of terations
		so the sterations grow to become It 22 where K is the number of sterate
	D	so for the levo.
4		the has shoe it 22 > 0
	D	ou dep sieps with 2k
li	D	Log L (log 1)
li	S	leg-2" > leg(leg n/
		Fel With each iteration i = i i grows exponentially rather than lineary so the iterations grow to become \$\mathbb{Z}^2\times where K is the number of iteration so for the leop; the loop stops when $2^{2K} > 0$ $\log 2^{2K} > \log 0$ $\log 2^{K} > \log (\log 0)$
		in time complexedy of O(leg(leg n?)
		: Line and L all (1. 2)
		Time complexed Of leg (leg 1)
# I		

 $f(h) = n \log n^3$ $\frac{d}{d} g(n) = n \log n$ on shorts if $f(n) \in \Theta(g(n))$ then there exists $C_1 = Q_1 = C_2$ such that $C_1 = Q_1(n) = C_2 = Q_1(n)$ let G=1 & C2=4 nlogn & 3 nlogn = Tirue : $f(n) \in \Theta(g(n))$. $f(n) = \frac{1}{3}n^2 + 10n - 2$ & $g(n) = n^2$ constant if $f(n) \in S2(g(n))$, then there exists "C" where $f(n) \neq cg(n)$ all n >/K 1/3 n² + 10 n - 2 7/ 1/3 n² 10n-2 70 -> True for n > 15 :. fin & SZ (g(n)). f(n) = n q(n) = . loo n + 10 n

if f(n) & O(g(n)) then there exists a constant of for which f(n) < c g(n) for all n > K g(n) i for) 15 not an element et 100 n2 + 10 n 0(961).

18



FI