Question 1

1. 5n3+2n2+3n=O(n3)

According to the definition of O ( ), f(n) C\* O(g(n)) for all nn0

By setting n0=3 & c greater than or equal to 6 works.

Doing the subtraction: 6n3 - (5n3+2n2+3n) 0 for n 3

So, 5n3+2n2+3n=O(n3)

According to the definition of , f(n) C1\* and f(n) C2\* nn0

By setting n0=1 and C1=1, f(n) C1\*.

when n.

By setting n0=1 and C1=4, f(n) C1

when n

So,

1. Show that if *d(n)=O(f(n))* and *e(n)=O(g(n))*, then the product *d(n)e(n)* is O*(f (n)g(n))*

If d(n) = *O(f(n)), then, for C1(Let’s say C1>1), d(n) C1 \* f(n). The same, for C2(Let’s say C2>1), e(n) C2 \* g(n).*

*Therefore, C1\*C2\* f(n)\*g(n) d(n)e(n), for that C1\*C2>1,(and only if the constants C is less than a certain threshold number, the equation may not hold true).*

Question 2

Def 1 =

Def 2 =

Def 3 =

Def 4 = )