Lab 7

Q1

f(n) = 5n + 12 gives f(n) =?.

f(n) = 109 gives f(n) =?.

f(n) = n^2+ 3n + 112 gives f(n) = ?

f(n) = n^3 + 1999n + 1337 gives f(n) = ?

f(n) = n + sqrt(n) gives f(n) = ?

Q2 Count the time complexity of the following function ?

a)
```
int sum(int a[], int n){                    1
        int i, total=0;                     1
        for(i=0; i<n; i++)                  n+1
                total+=a[i];                n2
        return total;                       1
}
```

b)
```
void Add(int a[,], int b[,], int c[,], int n){      1
    int i, j;                                       1
    for (i=0; i<n; i++)                             n+1
        for(j=0; j<n; j++)                          n*n+1
            c[i,j]=a[i,j]+b[i,j];                   n^2
}
```

c)

```
for i=1 to n do              n
    for j=i  to n do         n(1+n)/2
      x=x+1                  n(1+n)/2 + n(1+n)/2 + n  =n^2 +2n
   end
end
```

Q3 Prove that $f(n) = 10\ n^2 + 5n + 1$ can be expressed $O(n^2)$

Q4 Prove $O(10n^3 + 24n^2 + 3n \log n + 144)$, it is also $O(n^3)$.