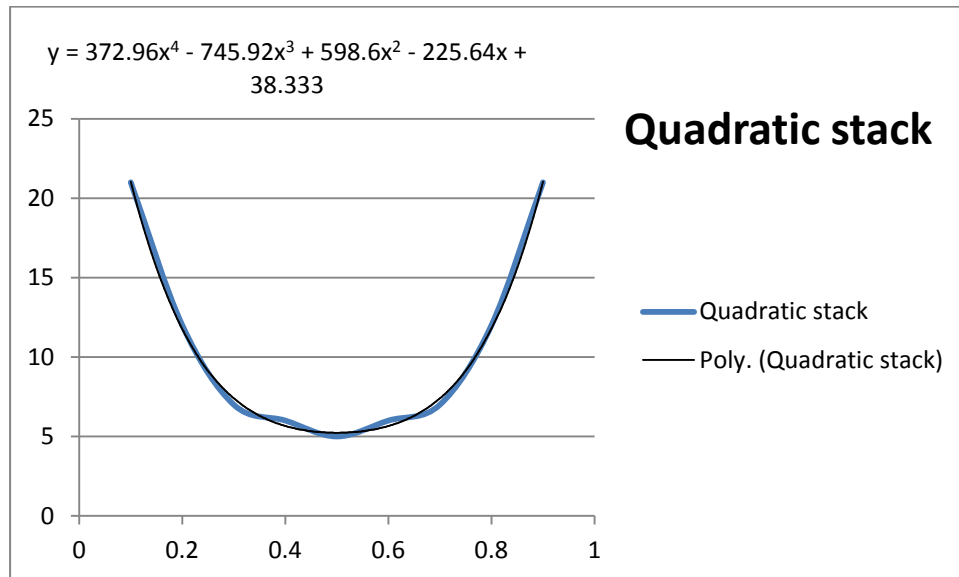


## Question 1

### Question 1.b

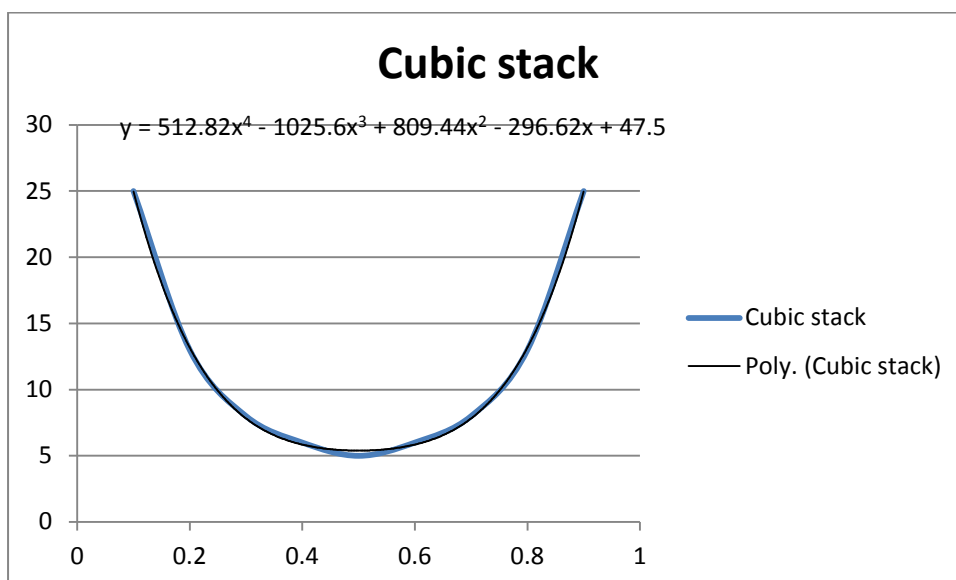
Here is a graph of the depth required depending on  $t$  to get a smooth graph using quadratic.



We see the depth is polynomial. And as the number of point is  $2^{depth}$ .

### Question 1.c

Here is a graph of the depth required depending on  $t$  to get a smooth graph using cubic.



## Question 2:

### Question 2.a

```

fun distance(arg1, arg2)
    String str1 = cleanWhiteSpace(arg1);
    String str2 = cleanWhiteSpace(arg2);
    int[][] distance = new int[str1.length() + 1][str2.length() + 1];

    for i from 0 to str1.lenght
        distance[i][0] = i * LAMBDA;

    for j from 0 to str2.lenght
        distance[0][j] = j * LAMBDA;

    for i from 0 to str1.lenght
        for j from 0 to str2.lenght
            int a = distance[i - 1][j] + LAMBDA;
            int b = distance[i][j - 1] + LAMBDA;
            //Cost calculate the cost between two char(Question b)
            int c = distance[i - 1][j - 1] + cost(str1.charAt(i - 1),
str2.charAt(j - 1));
            distance[i][j] = minimum(a, b, c);

    return distance(str1.lenght, str2.lenght)

fun cleanWhiteSpace(String arg)
    String str = replaceMultipleBlankByOne(arg);
    if(str.startsWith(" "))
        remove first charatcter;
    if(str.endsWith(" "))
        remove last charatcter;
    return str;

```

### Question 2.b

The letters have been grouped in several group(may be in multiple one) with each group a similarity value.(ex: 'o0' group has value 2 but 'abcdegopq0689' has value 4) Then we can return the best value of the groups where both char are in. If they have no group in common we set a default value higher.

Here is a table of the groups and their value.

49	6
o0	2
db	2
.,-	6
ijl1tf7	4
uvwxyzk	5
ij	2
z2	2
69g	2
6893	3

xy	2
1l	2
rmnh	5
abcdegopq0689	4
2zs5	3
s5	2
pq	2
bdgopq	3
uvw	2
mnh	2