Mert Kilic

100334228

Assignment 2

CPSC 2150

1)

1. N = 1, Moves = 2
2. N = 2, Moves = 16
3. N = 3, Moves = 78
4. N = 4, Moves = 332
5. N = 5, Moves = 1334

Tower of hanoi

T(N) = T(N-1)+T(N-1) + 1= 2T(N-1) + 1

T(N) = T(N-2) + T(N-2) + T(N - 2) + T(N-2) + 5 = 2(2T(n-2)+1)+1

Using GP series definition => T(N) = 2n – 1

Now, for semiHanoi,

We have:

S(N) = 2(N/2-1) + 2T(N)

S(N) = 2(2(N/4-1)-1) + 2(2T(N-1))

Therefore S(N) = logN + 2n