

1. Write the recurrence of the following code & solve it!

```
Function(A, N)  
  If N = 1 then  
    Return A  
  pow = Function(A, N / 2)  
  if N % 2 ≠ 0 then  
    return pow × pow × A  
  else  
    return pow × pow  
  end if
```

2. Find the complexity of the following code:

```
ABC(N)  
  If (N > 1)  
    For I = 1 to N do  
      J = N  
      While J > 1 Do  
        Print "Hello World!!"  
        Print "Hello World!!"  
        J = J / 2  
      End while  
    End For  
    For I = 1 to 8 do  
      ABC(N / 2)  
    End For  
  End If
```

3. Solve the following recurrence equations

a) $T(N) = 2 T(N / 4) + \sqrt{N}^3$

b) $T(N) = T(N-1) + C$; $T(0) = -1$

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