Practice with Recurrence Relations

Solve the following recurrence relations using the iteration technique:

1) $T(n) = T(n-1) + 2, \quad T(1) = 1$

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$T(n) = T(n-2) + 2 + 2$

$T(n) = T(n-3) + 2*3$

$T(n) = T($

Substituting Equations

$T(n-1) = T(n-2) + 2$

$T(n-2) = T(n-3) + 2$

$T(n-3) = T(n-4) + 2$

2) $T(n) = 2T(n/2) + n, \quad T(1) = 1$

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Substituting Equations

3) $T(n) = 2T\left(\frac{n}{2}\right) + 1, T(1) = 1$

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Substituting Equations

$n \rightarrow n/2$

4) $T(n) = T(n-1) + n, T(1) = 1$

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Substituting Equations

$n \rightarrow n\text{-}1$

5.

Use the iteration technique to find a Big-Oh bound for the recurrence relation below. Note you may find the following mathematical result helpful: $2^{log_3 n} = n^{log_3 2}$,

$\sum_{i=0}^{\infty} (2/3)^i = 3$

$T(n) = 2T(n/3) + cn$