Computer Science I – Summer 2011
Recitation #5: Recurrence Relations & Summations

Solve the following recurrence relations using the iteration technique shown in class:

1) $T(n) = T(n-1) + 7, \quad T(1) = 4$
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T(n) = T(n-1) + 7   <u>Substituting Equations</u>
T(1) = 4

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

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T(n) = 2T(n/2) + 2   <u>Substituting Equations</u>
T(1) = 2   n → n/2

<u>Here's one more that the TA will work out for you:</u>

3) $T(n) = T\left(\frac{n}{2}\right) + n, T(1) = 1$, Hint: $\sum_{i=0}^{\infty} \frac{n}{2^i} = 2n$ (Just get an approximate solution here.)