3) (10 pts) ANL (Recurrence Relations)

Use the iteration technique to find a Big-Oh bound for the recurrence relation below. Note: you may find the following mathematical results helpful: $2^{log_3 n} = n^{log_3 2}$, and $\sum_{i=0}^{\infty}(\frac{2}{3})^i = 3$. You may use these without proof in your work below.

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