

$$T(n) = \text{cost of base case} (\# \text{ of times base case is reached}) + \sum_{i=0}^{\frac{n-10}{10}} n-10i + c_1$$

$$= (\theta(1))(1^k) + \sum_{i=0}^{\frac{n-10}{10}} n - 10 \sum_{i=0}^{\frac{n-10}{10}} i + \sum_{i=0}^{\frac{n-10}{10}} c_1$$

$$= (\theta(1))(1^k) + n \left( \frac{n-10}{10} \right) - 10 \left( \frac{\left( \frac{n-10}{10} + 1 \right) \left( \frac{n-10}{10} \right)}{2} \right) + c_1 \left( \frac{n-10}{10} \right)$$

$$= (\theta(1)) + \frac{n^2 - 10n}{10} - 10 \left( \frac{\left( \frac{n}{10} \right) \left( \frac{n-10}{10} \right)}{2} \right) + c_1 \left( \frac{n-10}{10} \right)$$

$$= (\theta(1)) + \frac{n^2 - 10n}{10} - 5 \left( \frac{n^2 - 10n}{100} \right) + c_1 \left( \frac{n-10}{10} \right)$$

From the above we can see that the highest element is  $n^2$ , such that our runtime complexity for  $T(n)$  will be:

$$T(n) = \theta(n^2)$$