4. [13 points] Rafael finds details of another of TimberCorp’s logging operations, this time in a forest of redwoods which initially has 50,000 trees. TimberCorp plans to, at the start of each year, cut down 10% of the trees in the forest, and then over the course of the year replant $k$ trees.

a. [5 points] Let $R_n$ be the number of trees in the forest at the end of the $n$th year of the logging operation. Find expressions for $R_1$ and $R_2$. Your answers may involve $k$. You do not need to simplify your answers.

b. [5 points] Find a closed form expression for $R_n$. Closed form means your answer should not include ellipses or sigma notation, and should NOT be recursive. You do not need to simplify your closed form answer.

c. [3 points] Rafael wants the number of trees in the forest at the end of a year to tend towards 70,000 in the long run (i.e. after many many years). What value should he choose for $k$ to ensure this happens?