

Recurrence Problems 4-1 a to f on page 85 of Cormen, Leiserson, Rivest and Stein Book:

Give asymptotic upper and lower bounds for  $T(n)$  in each of the following recurrences. Assume that  $T(n)$  is constant for  $n \leq 2$ . Make your bounds as tight as possible, and justify your answers.

a.  $T(n) = 2T(n/2) + n^3$

b.  $T(n) = T(9n/10) + n$

c.  $T(n) = 16T(n/4) + n^2$

d.  $T(n) = 7T(n/3) + n^2$

e.  $T(n) = 7T(n/2) + n^2$

f.  $T(n) = 2T(n/4) + \sqrt{n}$