

CS445 — Spring 2006

Brief Class Notes

In this course, we will see a few common recursions. Here are some of them, and their solution. The conditions of all of them is $T(1) = c$, where a and c are constants, and $0 < a < 1$.

<i>Formula</i>	<i>Solution</i>
$T(n) = c + T(n - 1)$	$T(n) = O(n)$
$T(n) = cn + T(n - 1)$	$T(n) = O(n^2)$
$T(n) = cn + T(\lfloor n/2 \rfloor) + T(\lceil n/2 \rceil)$	$T(n) = O(n \log n)$
$T(n) = cn + T(an)$	$T(n) = O(n)$
$T(n) = cn + T(an) + T((1 - a)n)$	$T(n) = O(n \log n)$

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