



Master Theorem

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1/1 points earned (100%)

Quiz passed!



1 / 1
points

1.

Mark **all** the correct statements.



If $T(n) = T(n/2) + O(1)$ then $T(n) = O(\log n)$.



Correct

Yes, $T(n) = O(\log n)$: this is the running time of the binary search algorithm and a recurrence relation it satisfies.



If $T(n) = 3T(n/2) + O(n)$ then $T(n) = O(n)$.



Un-selected is correct



If $T(n) = 8T(n/2) + O(n^2)$ then $T(n) = O(n^4)$.



Correct

Yes, $T(n) = O(n^4)$: from the Master theorem, we know that $T(n)$ grows no faster than $n^{\log_2 8} = n^3$. At the same time, n^3 grows slower than n^4 and hence $T(n) = O(n^3)$ and $T(n) = O(n^4)$.



