50.004 Introduction to Algorithms, Fall 2015
Singapore University of Technology and Design 23 Sep, 2015
Simon Lui Home Exercises - Week 2

Student Information

Name: Zhang Zhexian Student ID: 1001214
Due Date: 28-Sep 4:00pm.
Submit written answer on paper in class or submit electronic version online through dropbox.. Submission without student information will **NOT** be marked! For those who submit the homework early and want to know the answer before the quiz, you can email us(TAs).

Week 2

Questions

Note: Please read and understand the Master Theorem before doing the following questions.

For each of the following recurrences, point out whether the run time $T(n)$ is True or False.

1. $T(n) = 3T(n/2) + n^2 \rightarrow T(n) = \Theta(n^2)$. (T/F) T
2. $T(n) = 4T(n/2) + n^2 \rightarrow T(n) = \Theta(n^2)$. (T/F) F
3. $T(n) = T(n/2) + 2^n \rightarrow T(n) = \Theta(2^n)$. (T/F) T
4. $T(n) = 16T(n/4) + n \rightarrow T(n) = \Theta(n)$. (T/F) F
5. $T(n) = \sqrt{2}T(n/2) + \log n \rightarrow T(n) = \Theta(\sqrt{n})$. (T/F) T
6. $T(n) = 7T(n/3) + n^2 \rightarrow T(n) = \Theta(n^2)$. (T/F) T