

FALL 2005: **COT 5407** INTRO. TO ALGORITHMS
[HOMEWORK 3; DUE OCT 18 AT START OF CLASS]

How to write algorithmic solutions: An ideal algorithmic solution must show **Basic Idea** in plain English, the **Algorithm** in pseudo-code, a sketch or argument of the **Proof of Correctness**, **Time and Space Complexity Analysis**, and a **Lower Bound** for the time and space complexity. The last item is not needed for your solutions in this class!

Reminder: As in the previous homework add a signed statement: I HAVE ADHERED TO THE COLLABORATION POLICY FOR THIS CLASS AND WHENEVER NO EXPLICIT CITATIONS OR SOURCES OF HELP ARE INDICATED, WHAT I HAVE PRESENTED IS MY OWN WORK.

Problems

16. (**Exercise**) Solve these exercises (These will not be graded): Exercise 8.2-1, p170; Exercise 8.3-1, p173; Exercise 9.3-3, p192;
17. (**Regular**) The binary system has base 2, while the decimal system has base 10. If the base of my system is n , how many digits do I need to express a number that is at most n^k ? Now use this information to solve Exercise 8.3-4, p173.
18. (**Extra Credit**) Solve Exercise 8-5, p180.
19. (**Regular**) Solve problem 9.3-1, p192.
20. (**Regular**) Solve problem 9.3-9, p193.
21. (**Regular**) Solve problem 12.2-1, p259.
22. (**Extra Credit**) Solve 12.2-8, p260.
23. (**Exercise**) Solve 13.3-2, p287. Handdrawn trees are acceptable.
24. (**Exercise**) Run all the animation demos recommended in class.