

Problem Set 1

All parts are due Thursday, February 20 at 11:59PM. Please download the .zip archive for this problem set, and refer to the `README.txt` file for instructions on preparing your solutions. Remember, your goal is to communicate. Full credit will be given only to a correct solution which is described clearly. Convolved and obtuse descriptions might receive low marks, even when they are correct. Also, aim for concise solutions, as it will save you time spent on write-ups, and also help you conceptualize the key idea of the problem.

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Part A

Problem 1-1.

- (a) $f_1(n) < f_2(n) < f_3(n) < f_5(n) < f_4(n)$
- (b) $f_4(n) < f_5(n) < f_3(n) < f_1(n) < f_2(n)$
- (c) $f_1(n) < f_2(n) < f_3(n) < f_5(n) \sim f_4(n)$

Problem 1-2.

- (a) $\theta(x)$
- (b) $\theta(x \log(x))$
- (c) $\theta(y \log(x))$
- (d) $\theta(\log x \log y)$
- (e) $\theta(x + y)$

Problem 1-3.

Problem 1-4.

Problem 1-5.

Problem 1-6.

Part B

Submit your implemented python script.