

Assignment 9
Computer Science 235

Reading. Sections 7.1, 7.2, 7.3, and 7.4

1) Answer each part TRUE or FALSE.

- a) $2n = O(n)$
- b) $n^2 = O(n)$
- c) $n \log^2 n = O(n^2)$
- d) $\sqrt{n} = O(\log n)$
- e) $3^n = 2^{O(n)}$
- f) $2^{2^n} = O(2^{2^n})$

2) Answer each part TRUE or FALSE.

- a) $n = o(2n)$
- b) $2n = o(n^2)$
- c) $3^n = o(2^n)$
- d) $n = o(1)$
- e) $n = o(\log n)$
- f) $1 = o(1/n)$

3) Show that P is closed under union, concatenation, and complement.

4) Show that NP is closed under union and concatenation.