

Today Hierarchy theorems; § 9.1. Synthesis and review.

Next class *Poster and portfolio presentations.*

Reminders Newsgroup.

1. List the members of your group below. Underline your name.

2. Define each of the following complexity classes. Provide an illustrative example of a problem/language in each. State and justify the strongest statements you can make about relationships among them. (You may use suitable results from the book, with explanation if the application is not obvious.)
(a) P (b) NP (c) PSPACE (d) NPSPACE (e) EXPTIME (f) EXPSPACE

3. Express (separately) each of the following languages in (separately) REX and REX \uparrow (or explain why it is not possible). Assume that the alphabet is $\Sigma = \{0, 1\}$.
- (a) Strings of length 42.
 - (b) Strings of length not equal to 42.
 - (c) Strings with at least 42 1s.
 - (d) Strings with fewer 1s than 0s.