

CSE 322 Spring'07: HW 4
Due back Friday April 27th

Reading Assignment: See notes posted on website.

Practice Problems: Exercise 1.55.

Problems for Submission:

1. Consider the language A of strings in $\{a, b\}^*$ that start and end in different **letters**. Describe the equivalence classes for this language. Prove that strings in different classes are not equivalent.
2. Let a, b be positive integers. Show that the language $B = \{0^{an+b} | n \geq 0\}$ is regular. Find its equivalence classes. Prove that strings in different classes are not equivalent.
3. Given an infinite sequence of positive integers $S = \{x_i\}_{i=1}^{\infty}$ such that $x_i < x_{i+1}$, define $Gap(i) = x_{i+1} - x_i$. Note that $Gap(i)$ is a positive integer. Show that if $Gap(i+1) > Gap(i)$ for every i , then the language

$$\{0^{x_i} | x_i \in S\}$$

is not regular.

4. Problem 1.64, parts a,b and c.

Next Week: Wrap up regular languages, CFGs.