

CSE625 Homework 2  
Due Monday, October 8

Give a regular expression for each of the following languages:

1.  $\{ s \in \{a, b\}^* : |s| \text{ is not divisible by } 2. \}$
2.  $\{ s \in \{a, b\}^* : s \text{ does not contain } abb \text{ as a substring. } \}$
3.  $\{ s \in \{a, b\}^* : s \text{ contains at least one } a \text{ and two } b\text{'s.} \}$
4.  $\{ a^i b^j : i + j \geq 3 \text{ and } i, j \geq 0. \}$
5.  $\{ a^i b a^j : i + j \text{ is odd and } i, j \geq 0. \}$   
(Hint: One of  $i$  and  $j$  is odd.)

(The grader will only grade a subset of these problems. For more practice, try problems 3.3, 3.7, 3.8, 3.9 and 3.11 in Martin.)