

CS 141: Advanced Topics in Algorithms  
Spring 2006  
Assignment Brad and Dave

Due: Thursday, March 30

1. [10 Points] More about Bases

Complete the proof we began in class. Let  $B_1, B_2 \in \mathcal{B}$  and let  $I_1, I_2 \in \mathcal{I}$  such that  $I_1 \subseteq B_1$  and  $I_2 \subseteq B_2$ . Recall that we have chosen  $B_2$  so that  $|B_2 - (I_2 \cup B_1)|$  is minimized. Prove that  $B_2 - B_1 = I_2 - I_1$ . (*Hint: Show that  $B_2 - (I_2 \cup B_1)$  is empty.*)