Part 4

For Part 4, I tested by analyzing the output of various scenarios in the hash map, and I made sure that the correct output happened under various scenarios for each method.

I used an rbst class that supports they key types mentioned in the description and any value type. I checked insertions when inserting the first element, making sure an element is overwritten when it has the same key, and inserting at different locations in the map. Since the map can become full, I try to insert more than the backing array number of slots to see if it performs the insertion correctly.

All of the methods were tested according to the method description, and I also tested for special cases throughout, such as when there clearing or removing an empty map. I outputted the results at each step and analyzed them to make sure that they were correct. I used print throughout the process, so print became tested just by testing the other methods and analyzing the output at each step.

In addition, I tested for each specified key type and I changed the value types to make sure they worked as well.

Furthermore, I tested on the OpenBSD VM to ensure that the tests ran correctly. The tests were made to output a lot of information in order to analyze the method and make sure that it ran correctly.