University of Washington

Department of Computer Science and Engineering

CSE 373

Problem Set 6 Solution

1. (3 Points) Union-Find Insertion

   Arbitrary union and union by height both give the following solution:

```
1: 1                      9: 8
2: 1                     10: 3
3: 1                     11: 3
4: 3                     12: 3
5: 3                     13: 3
6: 3                     14: 1
7: 1                     15: 14
8: 1                     16: 14
                         17: 16
```

   Union by size results in the following:

```
1: 3                      9: 8
2: 1                     10: 3
3: 3                     11: 3
4: 3                     12: 3
5: 3                     13: 3
6: 3                     14: 3
7: 1                     15: 14
8: 1                     16: 14
                         17: 16
```

2. (3 points) Find on Above Trees

   In both cases, have nodes 16 and 17 point directly to the root of the tree.

3. (10 points) Extra Credit

   See the homework web page.