Problem 3B

1. This solution achieves O(logN) time by comparing the value to the head and the tail, whichever value it is closest to, it starts its search from. Since the values are already sorted this allows for the smallest amount of compares.

**public** **static** **int** ProblemThree(Data data,**int** value)

{

**int** x = data.head.data;

**int** y = data.tail.data;

**int** a = Math.*abs*(value - x);

**int** b = Math.*abs*(value - y);

**int** compares = 0;

**if**( a < b )

{

Node temp = data.head;

**while**( temp.data != value )

{

temp = temp.next;

compares++;

}

}

**else**

{

Node temp = data.tail;

**while**( temp.data != value )

{

temp = temp.prev;

compares++;

}

}

**return** compares;

}