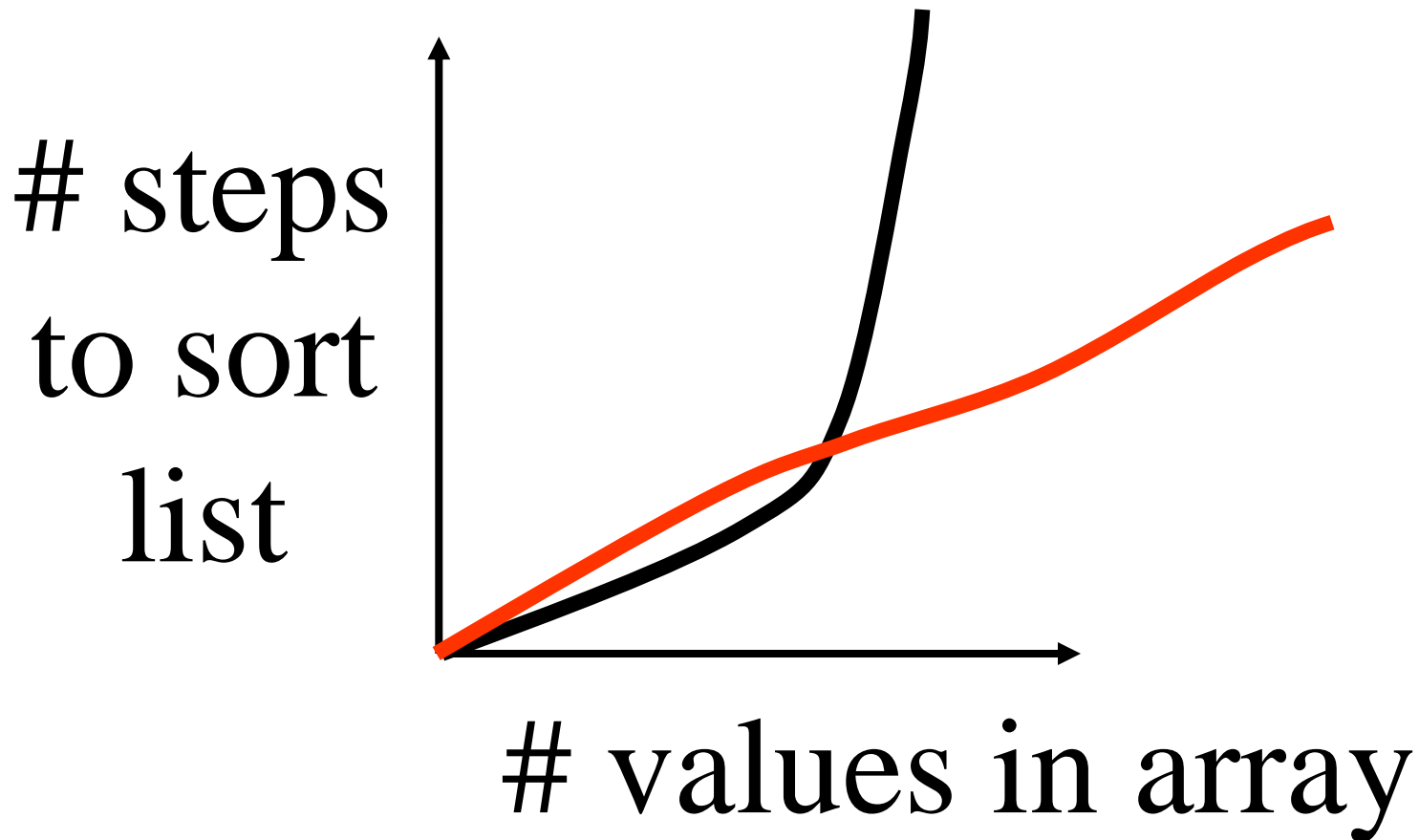


# Step Into Java: Merge Sort (again)

Mr. Neat  
Java

# Quadratic sorting algorithms are nice but...



# Merge Sort Pseudo Code

```
void mergeSort(int A[], int first, int last)  
{  
    // find middle index of A  
    // sort the first half of A  
    // sort the second half of A  
    // merge the first and second halves of A  
}
```

Split in Half, split in half,

.....

split in half....

# **Recursive**

## **Merge Sort Pseudo Code**

```
void mergeSort(int A[], int first, int last)  
{  
    if(sublist has only one value)  
        do nothing  
    else if(sublist has two values)  
        sort it if necessary  
    else  
        find midpoint of current sublist  
        call mergeSort and process left sublist  
        call mergeSort and process right sublist  
        merge left and right sublists  
}
```

# How About an Example:

12	7	3	11	2	8	5	17	1	6
----	---	---	----	---	---	---	----	---	---

divide

12	7	3	11	2
----	---	---	----	---

divide

12	7	3
----	---	---

divide

12	7
----	---

# How About an Example:

**order**

7	12
---	----

**do nothing**

3
---

**merge**

3	7	12
---	---	----

**do right**

11	2
----	---

**order**

2	11
---	----

**merge**

2	3	7	11	12
---	---	---	----	----

# How About an Example:

**do right**

8	5	17	1	6
---	---	----	---	---

**divide**

8	5	17
---	---	----

**divide**

8	5
---	---

**order**

5	8
---	---

**do left**

17
----

**do nothing**

17
----



# How About an Example:

merge

5	8	17
---	---	----

do left

1	6
---	---

order

1	6
---	---

merge

1	5	6	8	17
---	---	---	---	----

merge

1	2	3	5	6	7	8	11	12	17
---	---	---	---	---	---	---	----	----	----