

### Selection sort algorithm

Sorting A1:

Iteration 1: [63, 44, 17, 77, 20, 6, 39, 84, 52, 99], Comparisons: 9, Swaps: 1

Iteration 2: [63, 44, 17, 77, 20, 6, 39, 52, 84, 99], Comparisons: 8, Swaps: 1

Iteration 3: [63, 44, 17, 52, 20, 6, 39, 77, 84, 99], Comparisons: 7, Swaps: 1

Iteration 4: [39, 44, 17, 52, 20, 6, 63, 77, 84, 99], Comparisons: 6, Swaps: 1

Iteration 5: [39, 44, 17, 6, 20, 52, 63, 77, 84, 99], Comparisons: 5, Swaps: 1

Iteration 6: [39, 20, 17, 6, 44, 52, 63, 77, 84, 99], Comparisons: 4, Swaps: 1

Iteration 7: [6, 20, 17, 39, 44, 52, 63, 77, 84, 99], Comparisons: 3, Swaps: 1

Iteration 8: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 2, Swaps: 1

Iteration 9: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 1, Swaps: 1

Iteration 10: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 0, Swaps: 1

Sorting A2:

Iteration 1: [84, 52, 39, 6, 20, 17, 77, 44, 63, 99], Comparisons: 9, Swaps: 1

Iteration 2: [63, 52, 39, 6, 20, 17, 77, 44, 84, 99], Comparisons: 8, Swaps: 1

Iteration 3: [63, 52, 39, 6, 20, 17, 44, 77, 84, 99], Comparisons: 7, Swaps: 1

Iteration 4: [44, 52, 39, 6, 20, 17, 63, 77, 84, 99], Comparisons: 6, Swaps: 1

Iteration 5: [44, 17, 39, 6, 20, 52, 63, 77, 84, 99], Comparisons: 5, Swaps: 1

Iteration 6: [20, 17, 39, 6, 44, 52, 63, 77, 84, 99], Comparisons: 4, Swaps: 1

Iteration 7: [20, 17, 6, 39, 44, 52, 63, 77, 84, 99], Comparisons: 3, Swaps: 1

Iteration 8: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 2, Swaps: 1

Iteration 9: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 1, Swaps: 1

Sorting A3:

Iteration 1: [6, 84, 77, 63, 52, 44, 39, 20, 17, 99], Comparisons: 9, Swaps: 1

Iteration 2: [6, 17, 77, 63, 52, 44, 39, 20, 84, 99], Comparisons: 8, Swaps: 1

Iteration 3: [6, 17, 20, 63, 52, 44, 39, 77, 84, 99], Comparisons: 7, Swaps: 1  
Iteration 4: [6, 17, 20, 39, 52, 44, 63, 77, 84, 99], Comparisons: 6, Swaps: 1  
Iteration 5: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 5, Swaps: 1  
Iteration 6: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 4, Swaps: 1  
Iteration 7: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 3, Swaps: 1  
Iteration 8: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 2, Swaps: 1  
Iteration 9: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 1, Swaps: 1  
Iteration 10: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 0, Swaps: 1

### **Bubble sort algorithm**

Sorting A4:

Iteration 1: [44, 63, 17, 20, 77, 84, 6, 39, 52, 99], Comparisons: 9, Swaps: 6  
Iteration 2: [44, 17, 20, 63, 77, 6, 39, 52, 84, 99], Comparisons: 8, Swaps: 5  
Iteration 3: [17, 20, 44, 63, 6, 39, 52, 77, 84, 99], Comparisons: 7, Swaps: 5  
Iteration 4: [17, 20, 44, 6, 39, 52, 63, 77, 84, 99], Comparisons: 6, Swaps: 3  
Iteration 5: [17, 20, 6, 39, 44, 52, 63, 77, 84, 99], Comparisons: 5, Swaps: 2  
Iteration 6: [17, 6, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 4, Swaps: 1  
Iteration 7: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 3, Swaps: 1  
Iteration 8: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 2, Swaps: 0  
Total Comparisons: 44, Total Swaps: 23

Sorting A5:

Iteration 1: [52, 6, 39, 20, 77, 17, 84, 44, 63, 99], Comparisons: 9, Swaps: 7  
Iteration 3: [6, 20, 39, 17, 52, 44, 63, 77, 84, 99], Comparisons: 7, Swaps: 4  
Iteration 4: [6, 20, 17, 39, 44, 52, 63, 77, 84, 99], Comparisons: 6, Swaps: 2  
Iteration 5: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 5, Swaps: 1  
Iteration 6: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 4, Swaps: 0

Total Comparisons: 39, Total Swaps: 20

Sorting A6:

Iteration 1: [6, 17, 20, 39, 44, 52, 63, 77, 84, 99], Comparisons: 9, Swaps: 0

Total Comparisons: 9, Total Swaps: 0

### **Polynomial evaluation**

The value of the polynomial at  $x = 5.4$  is 227295.86317440012