

#### Heap Sort Test

Shapes before sorting  
Circle with radius 7.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 10.0 Rectangle with length 6.0 and width 11.0  
Shapes after sorting  
Rectangle with length 5.0 and width 10.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 6.0 and width 11.0 Circle with radius 7.0  
Area Values of the Shape Array after sorting:

50.0

60.0

66.0

153.93804002589985

This array is properly sorted

#### Merge Sort Test

Shapes before sorting  
Circle with radius 7.0 Rectangle with length 6.0 and width 11.0 Rectangle with length 5.0 and width 10.0  
Shapes after sorting  
Rectangle with length 5.0 and width 10.0 Rectangle with length 6.0 and width 11.0 Circle with radius 7.0  
Area Values of the Shape Array after sorting:

50.0

66.0

66.0

153.93804002589985

This array is properly sorted

#### Quick Sort Test

Shapes before sorting  
Circle with radius 7.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 5.0 and width 10.0 Rectangle with length 6.0 and width 11.0  
Shapes after sorting  
Rectangle with length 5.0 and width 10.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 6.0 and width 11.0 Circle with radius 7.0  
Area Values of the Shape Array after sorting:

50.0

60.0

66.0

153.93804002589985

This array is properly sorted

#### Shell Sort Test

Shapes before sorting  
Circle with radius 7.0 Rectangle with length 5.0 and width 10.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 6.0 and width 11.0  
Shapes after sorting  
Rectangle with length 5.0 and width 10.0 Rectangle with length 5.0 and width 12.0 Rectangle with length 6.0 and width 11.0 Circle with radius 7.0  
Area Values of the Shape Array after sorting:

50.0

60.0

66.0

153.93804002589985

This array is properly sorted