

# Les 1 huiswerk

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## 1 Opgave 1

a. Insertion sort:

{6, 0, 9, 3, 0, 5, 7, 3, 1, 5}

{0, 6, 9, 3, 0, 5, 7, 3, 1, 5}

{0, 6, 9, 3, 0, 5, 7, 3, 1, 5}

{0, 3, 6, 9, 0, 5, 7, 3, 1, 5}

{0, 0, 3, 6, 9, 5, 7, 3, 1, 5}

{0, 0, 3, 5, 6, 9, 7, 3, 1, 5}

{0, 0, 3, 5, 6, 7, 9, 3, 1, 5}

{0, 0, 3, 3, 5, 6, 7, 9, 1, 5}

{0, 0, 1, 3, 3, 5, 6, 7, 9, 5}

{0, 0, 1, 3, 3, 5, 5, 6, 7, 9}

b. Shell sort, increments {5, 3, 1}

6 0 9 3 0 5 7 3 1 5

5 6

0 7

3 9

1 3

0 5

5 0 3 1 0 6 7 9 3 5

1 5 5 7

0 0 9

3 3 6

1 0 3 5 0 3 5 9 6 7

0 0 1 3 3 5 5 6 7 9

c. Merge sort:

$\{6, 0, 9, 3, 0, 5, 7, 3, 1, 5\}$   
 $\{6, 0, 9, 3, 0\} \{5, 7, 3, 1, 5\}$   
 $\{6, 0\} \{9, 3, 0\} \{5, 7\} \{3, 1, 5\}$   
 $\{6\} \{0\} \{9\} \{3, 0\} \{5\} \{7\} \{3\} \{1, 5\}$   
 $\{6\} \{0\} \{9\} \{3\} \{0\} \{5\} \{7\} \{3\} \{1\} \{5\}$   
 $\{6\} \{0\} \{9\} \{0, 3\} \{5\} \{7\} \{3\} \{1, 5\}$   
 $\{0, 6\} \{0, 3, 9\} \{5, 7\} \{1, 3, 5\}$   
 $\{0, 0, 3, 6, 9\} \{1, 3, 5, 5, 7\}$   
 $\{0, 0, 1, 3, 3, 5, 5, 6, 7, 9\}$

## 2 Opgave 2

a. Insertion sort:

$\{6, 2, 5, 3, 4, 1, 0, 7\}$   
 $\{2, 6, 5, 3, 4, 1, 0, 7\}$   
 $\{2, 5, 6, 3, 4, 1, 0, 7\}$   
 $\{2, 3, 5, 6, 4, 1, 0, 7\}$   
 $\{2, 3, 5, 6, 4, 1, 0, 7\}$   
 $\{2, 3, 4, 5, 6, 1, 0, 7\}$   
 $\{1, 2, 3, 4, 5, 6, 0, 7\}$   
 $\{0, 1, 2, 3, 4, 5, 6, 7\}$

b. Shell sort, increments  $\{5, 3, 1\}$

$\begin{array}{cccccccc} 6 & 2 & 5 & 3 & 4 & 1 & 0 & 7 \\ 1 & & & & & 6 & & \\ & 0 & & & & & 2 & \\ & & 5 & & & & & 7 \\ & & & 3 & & & & \\ & & & & 4 & & & \\ 1 & 0 & 5 & 3 & 4 & 6 & 2 & 7 \\ 1 & & & 2 & & & 2 & \\ & 0 & & & 4 & & & 7 \\ & & 5 & & & 6 & & \\ 1 & 0 & 5 & 2 & 4 & 6 & 2 & 7 \\ 0 & 1 & 2 & 2 & 4 & 5 & 6 & 7 \end{array}$

c. Merge sort:

$\{6, 2, 5, 3, 4, 1, 0, 7\}$

$\{6, 2, 5, 3\} \{4, 1, 0, 7\}$

$\{6, 2\} \{5, 3\} \{4, 1\} \{0, 7\}$

$\{6\} \{2\} \{5\} \{3\} \{4\} \{1\} \{0\} \{7\}$

$\{2, 6\} \{3, 5\} \{1, 4\} \{0, 7\}$

$\{2, 3, 5, 6\} \{0, 1, 4, 7\}$

$\{0, 1, 2, 3, 4, 5, 6, 7\}$