

Prof. Dr. Sándor Fekete
Christian Rieck

Question Sheet
Quiz 2 for Nov 16, 2020

Which is the correct answer?

Question 1:

What does *not* define the convex hull of a point set X ?

- The intersection of all convex sets containing X .
- The set of all convex combinations of points of X .
- The maximal empty convex polygon on points of X .
- The minimal convex set containing X .

Question 2:

Which sorting algorithm is different from the others?

- Bubble Sort
- Selection Sort
- Insertion Sort
- Mergesort

Question 3:

What is the best valid lower bound for the time required to compute the convex hull of a set of n points?

- $\Omega(\log n)$
- $\Omega(n)$
- $\Omega(n \log n)$
- $\Omega(n^2)$

Question 4:

Sort by publication date!

- (A) Chan's algorithm
- (B) Graham's Scan
- (C) Jarvis' March
- (D) Preparata/Hong
- (E) Quickhull

Question 5:

What is the worst-case complexity of Gift Wrapping?

- $O(\log n)$
- $O(n)$
- $O(n \log n)$
- $O(n^2)$

Question 6:

What makes output-sensitive algorithms interesting?

- They have more robust runtime.
- The runtime does not depend on the input.
- The runtime bound may be better than for an algorithm whose runtime bound only depends on the input.
- The runtime is easier to analyze.

Question 7:

What is the critical step in the analysis of the Quickhull algorithm?

- Computing the median.
- Recursively subdividing the point set.
- Computing the convex hulls of the subsets.
- Computing joint tangents for the two subhulls.

Question 8:

What is the worst-case complexity of the Quickhull algorithm?

- $O(\log n)$
- $O(n)$
- $O(n \log n)$
- $O(n^2)$