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Question Sheet
Quiz 3 for Nov 23, 2021

Which is the correct answer?

Question 1:

What data structure(s) is/are particularly helpful for carrying out Graham's Scan?

- A sorted list
- A stack
- Both

Question 2:

What is the most expensive phase in Graham's Scan in terms of the runtime?

- Finding the point p with lowest y -coordinate
- Sorting all points by polar angle with respect to p
- Carrying out the scan and deleting right-hand turns

Question 3:

How many of the following algorithms have an arguably better time complexity than Graham's Scan?

(A) Jarvis' March (B) Quickhull (C) Preparata/Hong (D) Kirkpatrick/Seidel (E) Chan

- 0
- 1
- 2
- 3
- 4
- 5

Question 4:

Chan's algorithm is based on combining the ideas of which two algorithms in a really clever way?

- Preparata/Hong and Graham's Scan
- Graham's Scan and Jarvis' March
- Quickhull and Preparata/Hong
- Jarvis' March and Quickhull

Question 5:

Which of the following steps is *not* part of Chan's algorithm?

- Find an extremal point.
- Partition the point set into subsets of size m .
- Use Jarvis' March to compute the convex hulls of the subsets.
- Find H points along the joint convex hull.
- Use binary search for identifying tangents.

Question 6:

How do we determine the critical parameter H in Chan's algorithm?

- By setting $m = H$.
- By enumerating possible choices.
- By performing an exponential search.
- By performing a doubly exponential search.