

633247 2

Two algorithms accomplish the same task on a collection of N items. Algorithm A performs $\log_2 N$ operations. Algorithm B performs $\log_3 N$ operations. Under what conditions does algorithm A offer better performance?

- a. $N \leq 2$
- b. $N < \log_2 3$
- c. $N < \log_3 2$
- d. $N < 8$
- *e. For no N.
- f. "
- g. "
- h. "
- i. "
- j. "

General Feedback:

For no possible collection size N is $\log_2 N < \log_3 N$.

633241 2

Finding the median value in a complete and balanced binary search tree is

- *a. $O(1)$
- b. $O(\log N)$
- c. $O(N)$
- d. $O(N^2)$
- e. $O(N \log N)$
- f. "
- g. "
- h. "
- i. "
- j. "

General Feedback:

The median is the element that has M elements less than it and M elements greater than it. This can only be said of the root node in a complete and balanced binary tree. The root is accessed in constant time.

634183 2

For a heap of size n, which is indexed at 0, at what position will its last child be?

- a. $2n + 1$

- b. $n / 2$
- *c. $n - 1$
- d. $\text{floor}(n / 2) + 1$
- e. "
- f. "
- g. "
- h. "
- i. "

General Feedback:

The last element will be at the end of the array.