Quiz: Running time of binary search

Compute how many steps binary search would take to find an item in arrays of various sizes.

1 32 teams qualified for the 2014 World Cup. If the names of the teams were arranged in sorted order (an array), how many items in the array would binary search have to examine to find the location of a particular team in the array, in the worst case?

- A) At most, 1.
- B) At most, 16.
- C) At most, 6.
- D) At most, 32.

2 What is lg(32), the base-2 logarithm of 32?

- A) 5
- B) 32

C) 16

D) 1

3

You have an array containing the prime numbers from 2 to 311 in sorted order: [2, 3, 5, 7, 11, 13, ..., 307, 311]. There are 64 items in the array. About how many items of the array would binary search have to examine before concluding that 52 is not in the array, and therefore not prime?

A) 32

B) 11

C) 64

D) 128

E) 22

F) 1

G) 7

4

In 2013, there were 193 member states in the United Nations. If the names of these states were sorted alphabetically in an array, about how many names would binary search examine to locate a particular name in the array, in the worst case?

A) No more than 193.

B) No more than 4.

C) No more than 9.

D) No more than 128.

E) No more than 64.

5

The 2014 "Catalogue of Life" contains about 1580000 names of species. If these names were sorted in an array, in the worst case, how long would it take to use binary search to find the name of a particular species in the array?

A) At most, it would look at 6 names.

B) At most, it would look at 1580000 names.

C) At most, it would look at 790000 names.

D) At most, it would look at 22 names.

CHECK ANSWERS