20.4.23 Test 6

1. . Find the order of growth for solutions of the following recurrences .

a. T(n) = 4T(nf2) + n, T(1) = 1

2. What is the largest number of key comparisons made by binary search in searching for a key in the following array?

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 12 | 5 | 9 | 4 | 11 | 8 | 3 | 13 | 2 | 7 | 1 | 6 |

3. Find the average number of key comparisons made by a successful binary search in the following array.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 14 | 27 | 31 | 39 | 42 | 55 | 70 | 74 | 81 | 85 | 93 | 98 |