

MERGE SORT

[16, 21, 11, 8, 12, 22]

}n

[16, 21, 11]

[8, 12, 22]

}n

[16, 21] [11]

[8, 12] [22]

}n

[16] [21] [11]

[8] [12] [22]

}n

[16, 21] [11]

[8, 12] [22]

}n

[11, 16, 21]

[8, 12, 22]

}n

[8, 11, 12, 16, 21, 22]

$2^x = n$

$\log n$

$O(\log n)$

$O(n)$

$O(n \log n)$