|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input Size(n) | Ratio | No. of recursion | Ratio | No. of iteration | Ratio |
| 4 |  | 1 |  | 2 |  |
| 8 | 2 | 12 | 12 | 6 | 3 |
| 12 | 1.5 | 88 | 7.33 | 10 | 3.33 |
| 16 | 1.33 | 609 | 6.92 | 14 | 1.4 |
| 20 | 1.25 | 4180 | 6.86 | 18 | 1.28 |
| 24 | 1.2 | 28656 | 6.85 | 22 | 1.22 |
| 28 | 1.16 | 196417 | 6.85 | 26 | 1.18 |
| 32 | 1.14 | 1346268 | 6.85 | 30 | 1.15 |

The time complexity for recursive solution is O(2n).

The time complexity for dynamic programming solution is O(n).

Conclusion:

From the above table and graph, we can conclude that dynamic programming is much faster than recursive solution.