CS 311 Data Structures and Algorithms, Fall 2024 In-Class Worksheet 1: The Master Theorem

1. Algorithm *A* is given a list as input. It uses a Divide and Conquer strategy. It splits its input in half (or nearly so), and handles each part with a recursive call. It also does other work requiring constant time.

Use the Master Theorem to determine the order of Algorithm *A*. As a guide through this process, answer each of the following.

b = ____; *a* = ____.

f(n) is $\Theta(n^d)$. d =_____.

Compare *a* and b^d . Circle one comparison operator: $a < = > b^d$.

Which case of the Master Theorem? Circle one:123

Conclusion. The order of Algorithm A is (simplify!):