1.2 Why is it not possible for performance metrics to archive a linear curve as the number of processors increase in parallel computing.

-Amdahl's Law: Amdahl's law states that the speedup achieved by parallel processing is limited by the proportion of the program that cannot be parallelized. This means that even if the parallelized portion of a program scales perfectly with the number of processors, the non-parallelizable portion will limit the overall speedup. Therefore, as the number of processors increases, the impact of the non-parallelizable portion becomes more significant, and the performance improvement will eventually start to level off.

-Communication Overhead: In parallel computing, communication between processors is necessary to coordinate their activities and exchange data. As the number of processors increases, the amount of communication required also increases, leading to a communication bottleneck.

Therefore, even though adding more processors can lead to increased performance in parallel computing, it is not possible to achieve a linear curve because of Amdahl's law and communication overhead.