

Problem 1: SquareRoot of An Integer
Time efficiency: $O(\log(n))$
Space efficiency: $O(1)$

Explanation: I'm not using a specific data structure here to my advantage, Problem comes in as an array, but what I am using is binary search algorithm.

This method would be called an exhaustive enumeration method. The reasoning for using a binary search algorithm is to cut down iteration time from being linear $O(n)$ to being $O(\log(n))$.