BINARY SEARCH PART 2

(1) SQRT(X)

```
class Solution:
  def mysqrt(self, a: int) -> int:
    if a < 2:
      return a
    left, right = 2, a // 2
    while left <= right:
      mid = (left + right) // 2
      if mid * mid == a:
        return mid
      elif mid * mid < a:
        left = mid + 1
      else:
        right = mid - 1
    return right

solution = Solution()
print(solution.mysqrt(4))
print(solution.mysqrt(8))
print(solution.mysqrt(9))
print(solution.mysqrt(16))
```

(2) FIND INSERT POSITION

```
class Solution:
    def searchInsert(self, nums: List[int], target: int) -> int:
        left, right = 0, len(nums) - 1
        while left <= right:
            mid = (left + right) // 2
            if target == nums[mid]:
                return mid
            elif target > nums[mid]:
                left = mid + 1
            else:
                right = mid - 1
        return left
```