1. Why is \( h(k) = (2k + 1) \mod 8 \) a bad hash function for a hash table with 8 slots? Assume that the key values \( k \) are integers. Propose a better hash function and explain why it is superior.

2. Suppose you wanted to insert English words into a hash table with \( m \) slots. Propose a good hash function for this purpose that is likely to evenly distribute words throughout the table. You may consult external resources, but cite your sources and explain in detail why your hash function works well.

3. Show how to insert the following hash function values into a variety of hash tables, each with \( m = 15 \) slots.
   
   Hash values: \( h(k) = 13, 34, 3, 1, 64, 17, 22, 16, 9, 7, 79 \)
   
   (a) a hash table with chaining
   (b) a hash table that uses linear probing: \( h(k, i) = (h(k) + i) \mod m \)
   (c) a hash table that uses quadratic probing: \( h(k, i) = (h(k) + i^2) \mod m \)