The time complexity of the Rabin-Karp algorithm is dependent on the size of the text and the pattern being searched for. In the best case scenario, where the pattern is not found in the text, the time complexity is O(n + m), where n is the length of the text and m is the length of the pattern. This is because the algorithm only needs to calculate the hash values for the text and the pattern once, and then iterate through the text once to check for a match.However, in the worst case scenario, where the pattern is found in the text, the time complexity is O(nm). This is because the algorithm may need to calculate the hash values for all possible substrings of the text that have the same length as the pattern, which can be up to n - m + 1. For each of these substrings, the algorithm needs to calculate the hash value and compare it to the hash value of the pattern, which takes O(m) time. Therefore, the total time complexity is O(m(n - m + 1)) = O(nm).

TIME COMPLEXITY OF RABIN-KARP ALGORITHM