Problem J
Xorderable Array

You are given an array A of N integers: $[A_1, A_2, \ldots, A_N]$.

The array A is (p, q)-*xorderable* if it is possible to rearrange A such that for each pair (i, j) that satisfies $1 \leq i < j \leq N$, the following conditions must be satisfied after the rearrangement: $A_i \oplus p \leq A_j \oplus q$ **and** $A_i \oplus q \leq A_j \oplus p$. The operator $\oplus$ represents the *bitwise xor*.

You are given another array X of length M: $[X_1, X_2, \ldots, X_M]$. Calculate the number of pairs (u, v) where array A is (X_u, X_v)-xorderable for $1 \leq u < v \leq M$.

Input

The first line consists of two integers N M ($2 \leq N, M \leq 200\,000$).

The second line consists of N integers A_i ($0 \leq A_i < 2^{30}$).

The third line consists of M integers X_u ($0 \leq X_u < 2^{30}$).

Output

Output a single integer representing the number of pairs (u, v) where array A is (X_u, X_v)-xorderable for $1 \leq u < v \leq M$.

Sample Input #1

```
3 4
0 3 0
1 2 1 1
```

Sample Output #1

```
3
```

Explanation for the sample input/output #1

The array A is $(1, 1)$-xorderable by rearranging the array A to $[0, 0, 3]$.

Sample Input #2

```
5 2
0 7 13 22 24
12 10
```

Sample Output #2

```
1
```

Explanation for the sample input/output #2

The array A is $(12, 10)$-xorderable by rearranging the array A to $[13, 0, 7, 24, 22]$.

Sample Input #3

```
3 3
0 0 0
1 2 3
```

Sample Output #3

```
0
```

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