Subrectangle Count

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

Given an integer sequence of length $n(n \geq 2)$, denoted as $a_{1,2,\ldots,n}$, and an integer sequence of length $m(m \geq 2)$, denoted as $b_{1,2,\ldots,m}$, we can construct an $n \times m$ matrix c such that $c_{i,j} = a_i \oplus b_j (1 \leq i \leq n, 1 \leq j \leq m)$, where $\oplus$ denotes the bitwise XOR operation.

Determine how many pairs $(i,j)(1 \leq i < n, 1 \leq j < m)$ satisfy that the subrectangle region of c given by $\begin{bmatrix} c_{i,j} & c_{i,j+1} \\ c_{i+1,j} & c_{i+1,j+1} \end{bmatrix}$ is of the form $\begin{bmatrix} x & x+1 \\ x+2 & x+3 \end{bmatrix}$, meaning that $c_{i,j+1} = c_{i,j} + 1$, $c_{i+1,j} = c_{i,j} + 2$, and $c_{i+1,j+1} = c_{i,j} + 3$.

Input

The first line contains an integer $T(1 \leq T \leq 10^5)$, representing the number of test cases.

For each test case:

The first line contains two space-separated integers $n, m(2 \leq n, m \leq 2 \times 10^5)$, representing the number of rows and columns of c.

The second line contains n space-separated integers, representing $a_1, a_2, \ldots, a_n (0 \leq a_i < 2^{30})$.

The third line contains m space-separated integers, representing $b_1, b_2, \ldots, b_m (0 \leq b_i < 2^{30})$.

It is guaranteed that the sum of n does not exceed 2×10^5 and the sum of m does not exceed 2×10^5.

Output

For each test case, output a single line containing an integer, representing how many pairs (i,j) satisfy the condition.

Example

standard input	standard output
5 2 2 0 2 0 1 3 3 6 4 2 6 7 10 5 4 4 6 5 1 3 1 0 2 3 7 2 7 3 1 4 0 0 1 6 5 5 5 1 7 5 3 1 3 2 7 7 6	1 2 1 0 6