OR Tuples

Problem Code: **ORTUPLES**

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Chef has 3 numbers P, Q and R. Chef wants to find the number of triples (A, B, C) such that:

- $(A \mid B) = P$, $(B \mid C) = Q$ and $(C \mid A) = R$ (Here, $\mid$ denotes the bitwise OR operation (https://en.wikipedia.org/wiki/Bitwise_operation#OR))
- $0 \leq A, B, C < 2^{20}$

Can you help Chef?

Input Format

- The first line of input will contain a single integer T, denoting the number of test cases.
- Each test case consists of a single line of input containing 3 space-separated integers denoting P, Q and R respectively.

Output Format

For each test case, output a single integer denoting the number of triplets (A, B, C) that satisfy the given conditions.

Constraints

- $1 \leq T \leq 10^5$
- $0 \leq P, Q, R < 2^{20}$

Sample Input 1

```
3
10 12 14
0 5 5
0 0 7
```

Sample Output 1

```
4
1
0
```

Explanation

Test case 1: The following 4 triplets (A, B, C) satisfy $A \mid B = 10, B \mid C = 12$, and $C \mid A = 14$: $(2, 8, 12), (10, 0, 12), (10, 8, 4)$, and $(10, 8, 12)$.

Test case 2: The following triplet (A, B, C) satisfies $A \mid B = 0, B \mid C = 5$, and $C \mid A = 5$: $(0, 0, 5)$.

Test case 3: There are no triplets satisfying all the conditions.

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