Problem C. Squaring the Triangle

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	256 megabytes

Wesley creates a graph G that contains N vertices. For each pair of vertices $\{u, v\}$, there is a probability of $\frac{p}{q}$ that an edge exists between u and v. The probabilities are independent of each other.

Let $\Delta(G)$ denote the number of triangles in G. A triangle is a set of 3 vertices that are connected by 3 edges.

Please help Wesley find the expected value of $(\Delta(G))^2$.

Input

Line 1 contains integer T ($1 \leq T \leq 10^6$), the number of cases.

T lines follow. The i^{th} line contains integers N, p, q ($3 \leq N \leq 10^6, 1 \leq p < q \leq 10^6$), separated by spaces.

Output

Output T lines, one line for each case.

Suppose the answer to the i^{th} case is $\frac{P}{Q}$, in lowest terms. Output $PQ^{-1} \pmod{10^9 + 7}$. That is, output a number R such that $0 \leq R < 10^9 + 7$ and $P \equiv RQ \pmod{10^9 + 7}$.