Evaluate Division

For this problem we can model it as a graph traversal problem.

Key Insight:

- Each equation $A_i / B_i = value$ can be seen as a directed edge:
  - $A_i \rightarrow B_i$ with weight value
  - $B_i \rightarrow A_i$ with weight $1 / value$
- To solve a query C_j / D_j:
  - Check if both variables exist; otherwise return -1.0.
  - Perform a graph traversal (DFS or BFS) to find a path from C_j to D_j.
  - Multiply the weights along the path to get the result.

Steps:

1. Build Graph:
   - Use a hash map where each variable maps to neighbors and their weights.
   - Example: $a / b = 2.0$ -> edges: $a \rightarrow b\ (2.0)$
     $b \rightarrow a\ (0.5)$
2. Query Evaluation:
   - For each query (start, end):
     - If start or end is missing, return -1.0.
     - If start == end, return 1.0.
     - Otherwise, use DFS / BFS to find a path:
       - Keep a visited set to avoid cycles.
       - Multiply edge weights along the path.
3. Return results for all queries.

Complexity:

- Time: building graph: $O(N)$ where N = number of equations
  each query: $O(V+E)$ worst case traversal (but small constraints: max 20 equations).
- Space: $O(V+E)$ for graph and recursion / queue.