

399. Evaluate Division

Medium

🗂️ Topics

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💡 Hint

You are given an array of variable pairs `equations` and an array of real numbers `values`, where `equations[i] = [Ai, Bi]` and `values[i] = values[i]` represents the equation `Ai / Bi = values[i]`.

You are also given some queries, where `queries[j] = [Cj, Dj]` represents the `jth` query where you must find the answer for `Cj / Dj`.

Return *the answers to all queries*. If a single answer cannot be determined, return `-1.0`.

Note: The input is always valid. You may assume that evaluating the queries will not result in division by zero and that there is no contradict.

Note: The variables that do not occur in the list of equations are undefined, so the answer cannot be determined for them.

Example 1:

Input: `equations = [["a","b"],["b","c"]]`, `values = [2.0,3.0]`, `queries = [["a","c"],["b","a"],["a","e"],["x","y"]]`

Output: `[6.00000,0.50000,-1.00000,1.00000,-1.00000]`

Explanation:

Given: `a / b = 2.0`, `b / c = 3.0`

queries are: `a / c = ?`, `b / a = ?`, `a / e = ?`, `a / a = ?`, `x / x = ?`

return: `[6.0, 0.5, -1.0, 1.0, -1.0]`

note: `x` is undefined => `-1.0`

Example 2:

Input: `equations = [["a","b"],["b","c"],["bc","cd"]]`, `values = [1.5,2.5,5.0]`, `queries = [["a","c"],["b","d"],["bc","cd"],["d","a"],["cd","bc"]]`

Output: `[3.75000,0.40000,5.00000,0.20000]`

Example 3:

Input: `equations = [["a","b"]]`, `values = [0.5]`, `queries = [["a","b"],["b","a"],["a","c"],["x","y"]]`

Output: `[0.50000,2.00000,-1.00000,-1.00000]`

Constraints:

- `1 <= equations.length <= 20`
- `equations[i].length == 2`
- `1 <= Ai.length, Bi.length <= 5`
- `values.length == equations.length`
- `0.0 < values[i] <= 20.0`
- `1 <= queries.length <= 20`
- `queries[i].length == 2`
- `1 <= Cj.length, Dj.length <= 5`
- `Ai, Bi, Cj, Dj` consist of lower case English letters and digits.

Seen this question in a real interview before? 1/4

Yes

No

Accepted

440.4K

Submissions

716K

Acceptance Rate

61.5%

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💡 Hint 1