2147. The Score of Students Solving Math Expression

Difficulty : Hard

https://leetcode.com/problems/the-score-of-students-solving-math-expression

You are given a string `s` that contains digits `0-9`, addition symbols `'+'`, and multiplication symbols `'*'` **only**, representing a **valid** math expression of **single digit numbers** (e.g., `3+5*2`). This expression was given to `n` elementary school students. The students were instructed to get the answer of the expression by following this **order of operations**:

1. Compute **multiplication**, reading from **left to right**; Then,
2. Compute **addition**, reading from **left to right**.

You are given an integer array `answers` of length `n`, which are the submitted answers of the students in no particular order. You are asked to grade the `answers`, by following these **rules**:

- If an answer **equals** the correct answer of the expression, this student will be rewarded `5` points;
- Otherwise, if the answer **could be interpreted** as if the student applied the operators **in the wrong order** but had **correct arithmetic**, this student will be rewarded `2` points;
- Otherwise, this student will be rewarded `0` points.

Return *the sum of the points of the students.*

Example 1:

```
    7 + 3 * 1 * 2
=   7 +   3   * 2   Compute multiplication, reading from left to right.
=   7 +     6       Compute multiplication, reading from left to right.
=       13          Compute addition, reading from left to right.
```

```
Input: s = "7+3*1*2", answers = [20,13,42]
Output: 7
Explanation: As illustrated above, the correct answer of the expression is 13, therefore one student is rewarded 5 points: [20,13,42]
A student might have applied the operators in this wrong order: ((7+3)*1)*2 = 20. Therefore one student is rewarded 2 points: [20,13,42]
The points for the students are: [2,5,0]. The sum of the points is 2+5+0=7.
```

Example 2:

```
Input: s = "3+5*2", answers = [13,0,10,13,13,16,16]
Output: 19
Explanation: The correct answer of the expression is 13, therefore three students are rewarded 5 points each: [13,0,10,13,13,16,16]
A student might have applied the operators in this wrong order: ((3+5)*2 = 16. Therefore two students are rewarded 2 points: [13,0,10,13,13,16,16]
The points for the students are: [5,0,0,5,5,2,2]. The sum of the points is 5+0+0+5+5+2+2=19.
```

Example 3:

```
Input: s = "6+0*1", answers = [12,9,6,4,8,6]
Output: 10
Explanation: The correct answer of the expression is 6.
If a student had incorrectly done (6+0)*1, the answer would also be 6.
By the rules of grading, the students will still be rewarded 5 points (as they got the correct answer), not 2 points.
The points for the students are: [0,0,5,0,0,5]. The sum of the points is 10.
```

Constraints:

- `3 <= s.length <= 31`
- `s` represents a valid expression that contains only digits `0-9`, `'+'`, and `'*'` only.
- All the integer operands in the expression are in the **inclusive** range `[0, 9]`.
- `1 <=` The count of all operators (`'+'` and `'*'`) in the math expression `<= 15`
- Test data are generated such that the correct answer of the expression is in the range of `[0, 1000]`.
- `n == answers.length`
- `1 <= n <= 10^4`
- `0 <= answers[i] <= 1000`