4. Digit Expressions

PROBLEM: Given a string of digits, find all valid mathematical expressions that can be formed by placing binary operators between various digits subject to the following rules:

1. Just the binary operators +, - and * will be used. They can be used at most once in each expression, and in any order.
2. Each expression must have at least one operator.
3. Operands may not start with a 0.
4. The result must be a positive integer.
5. All the digits must be used in each expression and in the original order.

Example 1: The string of digits 1504 results in the following valid mathematical expressions:

- Using one operator: 1 + 504 = 505   150 + 4 = 154   150 - 4 = 146
  1 * 504 = 504   150 * 4 = 600
- Using two operators: 1 + 50 * 4 = 201 1 + 50 - 4 = 47   1 * 50 - 4 = 46   1 * 50 + 4 = 54
- Using all three operators: no expressions are valid

Therefore there are 9 valid expressions.

Example 2: The string 1200032 is more complicated. The number can be separated in 7 ways:

1 2000 3 2   1 2000 32   12000 3 2   12000 32   1 20003 2   120003 2   1 200032

Now, consider each in turn. In the case of "1 2000 3 2", there are spots for 3 operators, so there are potentially 3*2*1 = 6 expressions. However, not all 6 expressions give positive values. Once all values have been determined, count the number of valid expressions. There are 26 valid expressions.

INPUT: There will 10 lines of input. Each will contain a string of at most 32 digits.

OUTPUT: Print the number of valid expressions that can be generated using the rules above.

SAMPLE INPUT: (*3 lines of data only; the Test Data will have 10 lines of data*)**:**
1200032
32168
987654

SAMPLE OUTPUT:
1. 26
2. 49
3. 101

TEST DATA

TEST INPUT:

```
1357
24680
314159265
500321
8000000
60302010
9870000000
50400300020000100000
908070605040302010
02004000600008
```

TEST OUTPUT:

1. 23

2. 21

3. 361

4. 33

5. 0

6. 25

7. 7

8. 45

9. 377

10. 26