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--- Day 4: Ceres Search ---

"Looks like the Chief's not here. Next!" One of The Historians pulls out a device and pushes the only button on it. After a brief flash, you recognize the interior of the [Ceres monitoring station](#)!

As the search for the Chief continues, a small Elf who lives on the station tugs on your shirt; she'd like to know if you could help her with her word search (your puzzle input). She only has to find one word: [XMAS](#).

This word search allows words to be horizontal, vertical, diagonal, written backwards, or even overlapping other words. It's a little unusual, though, as you don't merely need to find one instance of [XMAS](#) - you need to find all of them. Here are a few ways [XMAS](#) might appear, where irrelevant characters have been replaced with [.](#):

```
..X...  
.SAMX.  
.A..A.  
XMAS.S  
.X....
```

The actual word search will be full of letters instead. For example:

```
MMMSXXMASM  
MSAMXMSMA  
AMXSXMAAMM  
MSAMASMSX  
XMASAMXAMM  
XXAMMXXAMA  
SMSASXSS  
SAXAMASAA  
MAMMMXMMM  
MXMXAXMASX
```

In this word search, [XMAS](#) occurs a total of [18](#) times; here's the same word search again, but where letters not involved in any [XMAS](#) have been replaced with [.](#):

```
....XXMAS.  
.SAMXMS...  
...S..A...  
..A.A.MS.X  
XMASAMX.MM  
X.....XA.A  
S.S.S.S.SS  
.A.A.A.A.A  
..M.M.M.MM  
.X.X.XMASX
```

Take a look at the little Elf's word search. How many times does [XMAS](#) appear?

Your puzzle answer was [2573](#).

--- Part Two ---

The Elf looks quizzically at you. Did you misunderstand the assignment?

Looking for the instructions, you flip over the word search to find that this isn't actually an [XMAS](#) puzzle; it's an [X-MAS](#) puzzle in which you're supposed to find two [MAS](#) in the shape of an [X](#). One way to achieve that is like this:

```
M.S  
.A.  
M.S
```

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Irrelevant characters have again been replaced with `.` in the above diagram. Within the `X`, each `MAS` can be written forwards or backwards.

Here's the same example from before, but this time all of the `X-MAS`s have been kept instead:

```
.M.S.....
..A..MSMS.
.M.S.MAA..
..A.ASMMS.
.M.S.M....
.....
S.S.S.S.S.
.A.A.A.A..
M.M.M.M.M.
.....
```

In this example, an `X-MAS` appears `9` times.

Flip the word search from the instructions back over to the word search side and try again. How many times does an `X-MAS` appear?

Your puzzle answer was `1850`.

Both parts of this puzzle are complete! They provide two gold stars: **

At this point, you should [return to your Advent calendar](#) and try another puzzle.

If you still want to see it, you can [get your puzzle input](#).

You can also [Share](#) this puzzle.