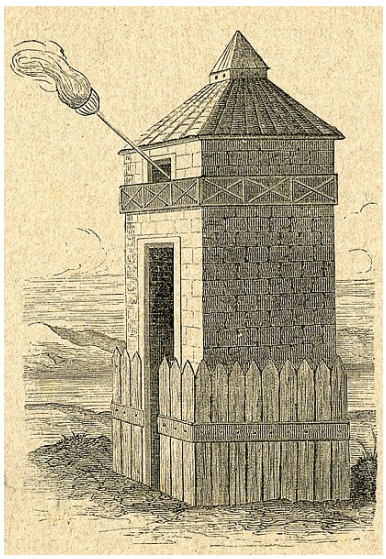
C: Phryctoria

Time limit: 1 second



Lusius Quietus, one of the generals of Trajan, the Roman emperor, is sending signals to his army using signal towers like the one above, where the fires you lit can be seen from afar.

He wants to send the string S describing military manoeuvres. However, sending long messages via fire signals is time-consuming, so Lusius decides to use a shorthand system. To abbreviate the message, Lusius can replace any substring of S with the special character '*'. For example, if S is "swerc", then some possible abbreviations are: "swe*", "*sw*r*", "swerc", "*", etc. Note that '*' can match the whole string or no character at all, so "*sw*r*" is indeed considered a valid abbreviation of "swerc" even though it's longer (Lusius is not always clever).

However, there is a problem: the recipient might misinterpret Lusius's message. If the abbreviation he sends is also a valid abbreviation of the string T, which is a word used to signal retreat, it could lead to losing the war.

Help Lusius find the length of the shortest possible abbreviation of S that cannot be interpreted as an abbreviation of T.

Input

The first line contains two integers N and M, the lengths of the strings S and T, respectively. The second line contains the string S. The third line contains the string T.

Output

The length of the shortest abbreviation of S.

Limits

- $1 \leqslant N \leqslant 500$.
- $1 \leqslant M \leqslant 500$.
- $S \neq T$.
- S and T contain only lowercase English letters.

Sample Input

```
5 5
swerc
seerc
```

Sample Output

```
3
```

Sample Explanation

A possible solution is "`sw*`".

Image credits: Roman signalling tower, from a bas-relief of the Trajan column, public domain. (from L'illustrazione popolare, Fratelli Treves Editori - Milano, 1895.), via Wikimedia Commons.