Convert (a –b)/c\*(d + e – f / g) to prefix

**Algorithm**

1. Convert the infix to postfix by using stack
2. Inverse postfix

**Priority**

‘+’ ‘-‘ = 1

‘\*’ ‘/’ = 2

**Convert the infix to postfix by using stack**

|  |  |  |  |
| --- | --- | --- | --- |
| Expression | Stack | Output | Comment |
| (a –b)/c\*(d + e – f / g) | null |  | Initial |
| a-b)/c\*(d + e – f / g) | ( |  | Push ‘(‘ |
| -b)/c\*( d + e – f / g) | ( | a | Keep ‘a’ into output |
| b)/c\*( d + e – f / g) | (- | a | Push ‘-‘ |
| )/c\*( d + e – f / g) | (- | ab | Keep ‘b’ into output |
| / c\*( d + e – f / g) |  | ab- | Pop and keep to output |
| c\*( d + e – f / g) | / |  | Push ‘/‘ |
| \*( d + e – f / g) | / | ab-c | Keep ‘c’ into output |
| \*( d + e – f / g) |  | ab-c/ | Pop |
| ( d + e – f / g) | \* | ab-c/ | Push ‘\*‘ |
| d + e – f / g) | \*( | ab-c/ | Push ‘(’ |
| + e – f / g) | \*( | ab-c/d | Keep ‘d’ into output |
| e – f / g) | \*(+ | ab-c/d | Push |
| – f / g) | \*(+ | ab-c/de | Keep ‘e’ into output |
| - f / g) | \*( | ab-c/de+ | Pop |
| f / g) | \*(- | ab-c/de+ | Push |
| / g ) | \*(- | ab-c/de+f | Keep ‘f’ into output |
| g ) | \*(-/ | ab-c/de+f | Push |
| ) | \*(-/ | ab-c/de+fg | Pop all |
|  |  | ab-c/de+fg/-\* | Finish |

**Inverse postfix**

The postfix is ab-c/de+fg/-\*

The prefix is \*-/gf+ed/c-ba

**Answer**

The prefix of (a –b)/c\*(d + e – f / g) is **\*-/gf+ed/c-ba**