Nama : Puspa Tri Angraini
NPM : G1F021022

1. Write an algorithm to convert an infix expression to postfix and infix to prefix

INPUT CHARACTER	STACK	POSTFIX EXPRESSION
A	Empty	A
*	*	A
B	*	A B
−	−	A B *
(	− (	A B *
C	− (	A B * C
+	− (+	A B * C
D	− (+	A B * C D
)	−	A B * C D +
+	+	A B * C D + −
E	+	A B * C D + − E
End of Input	Empty	A B * C D + − E +

POSTFIX EXPRESSION :- A B * C D + − E +
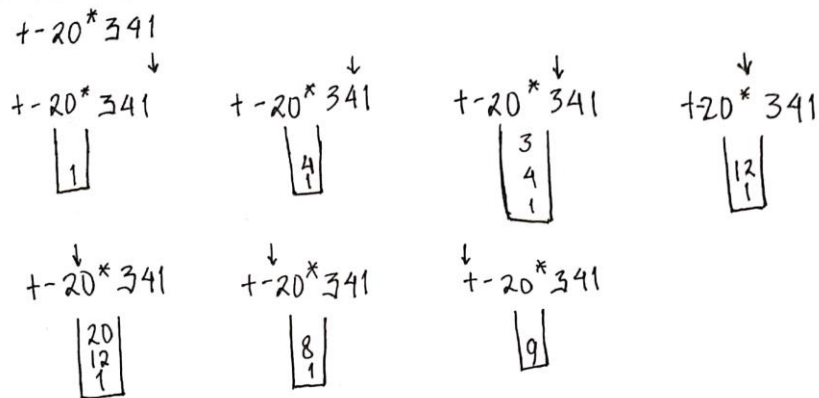
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INPUT CHARACTER	STACK	EXPRESSION
F		F
^	^	F
)	^)	FE
E	^)	FE
–	^)-	FE
D	^)-	FED
(	^)-	FED-
–	–	FED-^
C	–	FED-^C
+	+	FED-^C-
)	+)	FED-^C-
B	+)	FED-^C-B
+	+)+	FED-^C-B
A	+)+	FED-^C-BA
(	+	FED-^C-BA+
End of Input	empty	FED-^C-BA++

PREFIX EXPRESSION : ++AB-C^-DEF

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2. Write an algorithm to evaluate a postfix and a prefix expression

A. Prefix

$+-20*341$

$+-20*3\underset{\downarrow}{4}1$ $+-20*\overset{\downarrow}{3}41$ $+-2\overset{\downarrow}{0}*341$ $+\overset{\downarrow}{2}0*341$

1		4		3		12
		1		4		1
				1		

$+\overset{\downarrow}{-}20*341$ $\overset{\downarrow}{+}-20*341$ $\overset{\downarrow}{+}-20*341$

20		8		9
12		1		
1				

B. Postfix

$456*+$

$456*\overset{\downarrow}{+}$ $456\overset{\downarrow}{*}+$ $45\overset{\downarrow}{6}*+$

4		5		6
		4		5
				4

$456\overset{\downarrow}{*}+$ $456*\overset{\downarrow}{+}$

120		120