

SCT 222-0145/2023

Assignment Lanrele Mwangangi

1. Convert the following expression into an expression tree using a stack

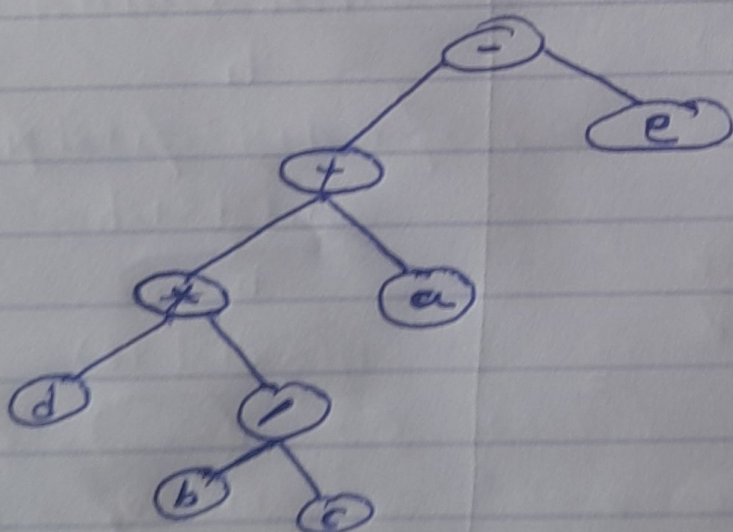
$$a + b/c * d - e$$

Token	Stack	Postfix
a		a
+	+	a
b	+	ab
/	+/	ab
c	+/	abc
*	+/*	abc/
d	+/*	abc/d
-	+/*-	abc/d*
	+/*-	abc/d*+
e	+/*-	abc/d*+e-

Post fix $\rightarrow abc/d*+e-$

Tree diagram

$abc/d*+e(-) \rightarrow \text{Root}$



Convert $a * b * c$ into infix using stack and show steps

$a * b * c \rightarrow c * b * a$

Postfix	Stack	Token
$c * b * a$		e
$b * a$		cb
$* a$	$* \rightarrow$	$c * b$
$a +$		$c * b a$
$+$	$+ \rightarrow$	$c * b + a$

$c * b + a \rightarrow \text{read from R-L}$
 $= a + b * c$