Application – Postfix Expression

Application – Postfix Expression

Infix	Postfix

Application – Postfix Expression

Infix	Postfix
$A + B$	

Application – Postfix Expression

Infix	Postfix
A + B	AB+

Application – Postfix Expression

Infix	Postfix
`operator`	
A + B	AB+

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	
$A + B$	$AB+$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand`
A + B	AB+

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$A + B + C$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$A + B + C$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + +C$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	$(A + B) * (C + D)$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	$(AB+) * (C + D)$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	$(AB+) * (CD+)$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	$(AB+)(CD+)*$

Application – Postfix Expression

Infix	Postfix
`operand operator operand`	`operand operand operator`
$A + B$	$AB+$
$A - B$	$AB-$
$A + B + C$	$AB + C+$
$(A + B) * (C + D)$	$AB + CD + *$

Infix to Postfix

`Infix`

`Postfix`

Infix to Postfix

Infix	Postfix
A/B/C	

Infix to Postfix

Infix	Postfix
A/B/C	AB/C/

Infix to Postfix

Infix	Postfix
A/B/C	AB/C/
$A + B * C$	

Infix to Postfix

Infix	Postfix
A/B/C	AB/C/
A + B ∗ C	ABC ∗ +

Infix to Postfix

Infix	Postfix
$A/B/C$	$AB/C/$
$A + B * C$	$ABC * +$
$A * B + C$	

Infix to Postfix

Infix	Postfix
A/B/C	AB/C/
A + B * C	ABC * +
A * B + C	AB * C+

Infix to Postfix

Infix	Postfix
$A/B/C$	$AB/C/$
$A + B * C$	$ABC * +$
$A * B + C$	$AB * C+$
$A + B * C + D$	

Infix to Postfix

Infix	Postfix
$A/B/C$	$AB/C/$
$A + B * C$	$ABC * +$
$A * B + C$	$AB * C+$
$A + B * C + D$	$ABC * +D+$

Infix to Postfix

Infix	Postfix
$A/B/C$	$AB/C/$
$A + B * C$	$ABC * +$
$A * B + C$	$AB * C+$
$A + B * C + D$	$ABC * +D+$
$(A + B) * (C + D)$	

Infix to Postfix

Infix	Postfix
$A/B/C$	$AB/C/$
$A + B * C$	$ABC * +$
$A * B + C$	$AB * C+$
$A + B * C + D$	$ABC * +D+$
$(A + B) * (C + D)$	$AB + CD + *$

Postfix Expressions

- *Evaluation*

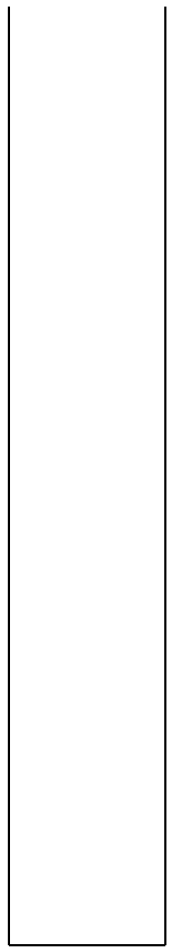
Postfix Expressions - Evaluation

$$A + B$$

Postfix Expressions - Evaluation

$$\mathrm{A} + \mathrm{B} \implies \mathrm{AB} +$$

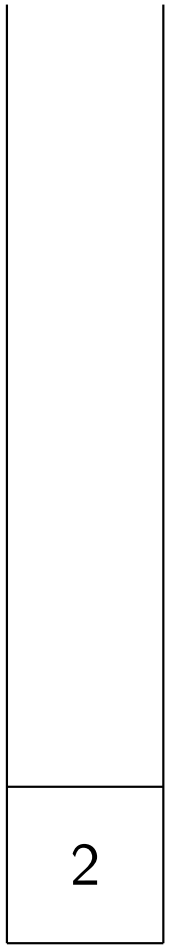
Postfix Expressions - Evaluation



$$A + B \implies AB +$$

$$2 \quad + \quad 3 \implies 2 \quad 3 \quad +$$

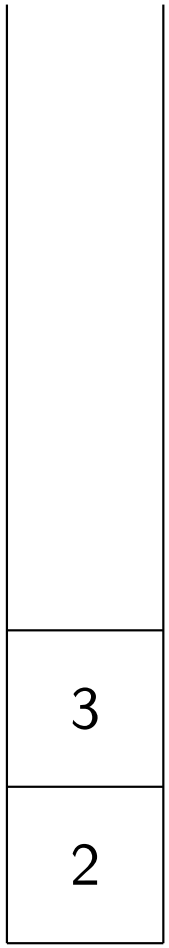
Postfix Expressions - Evaluation



$$A + B \implies AB +$$

$$2 \quad + \quad 3 \implies 2 \quad 3 \quad +$$

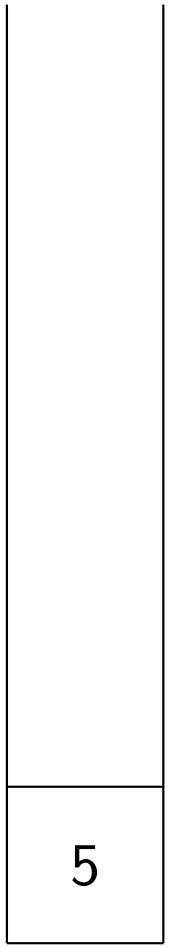
Postfix Expressions - Evaluation



$$A + B \implies AB +$$

$$2 \quad + \quad 3 \implies 2 \quad 3 \quad +$$

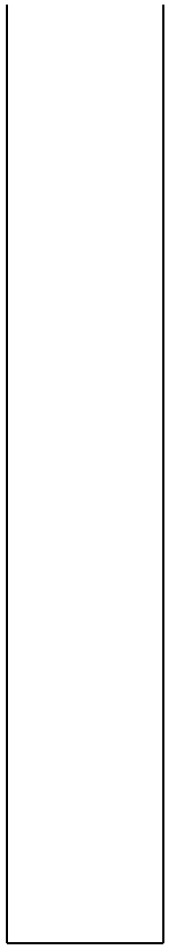
Postfix Expressions - Evaluation



$$A + B \implies AB +$$

$$2 \quad + \quad 3 \implies 2 \quad 3 \quad +$$

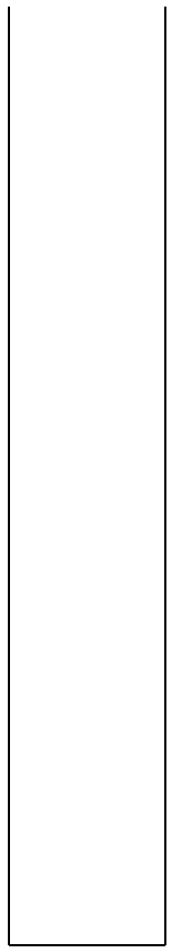
Postfix Expressions - Evaluation



$$A + B \Longrightarrow AB +$$

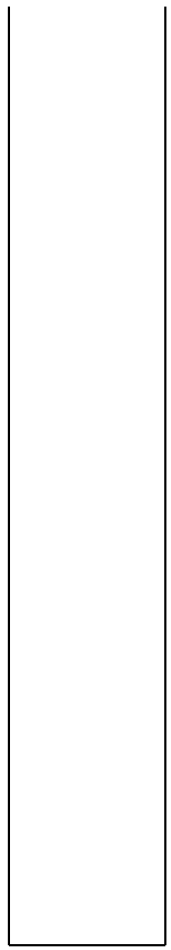
$$2 \quad + \quad 3 \Longrightarrow 2 \quad 3 \quad + = \quad 5$$

Postfix Expressions - Evaluation



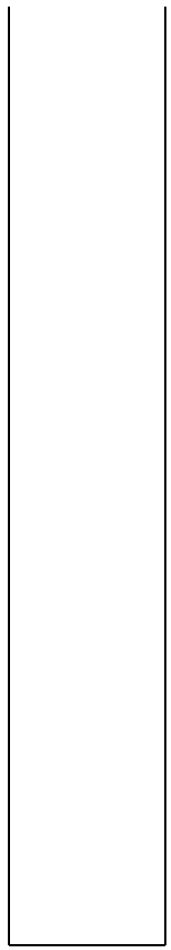
A + B + C

Postfix Expressions - Evaluation



$$A + B + C \implies AB + C +$$

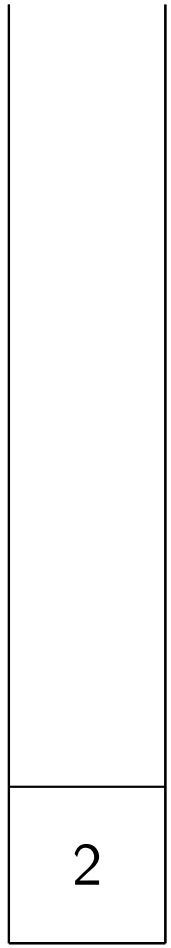
Postfix Expressions - Evaluation



$$A + B + C \implies AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \implies 2 \; 3 \quad + \quad 4 \quad +$$

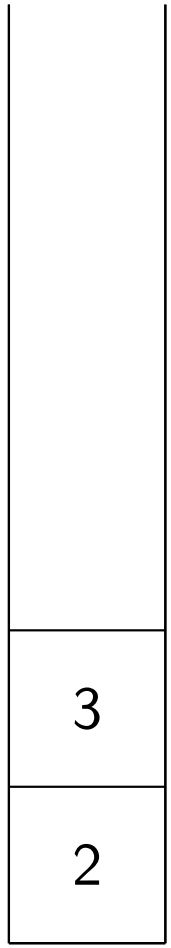
Postfix Expressions - Evaluation



$$A + B + C \Longrightarrow AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \Longrightarrow 2 \quad 3 \quad + \quad 4 \quad +$$

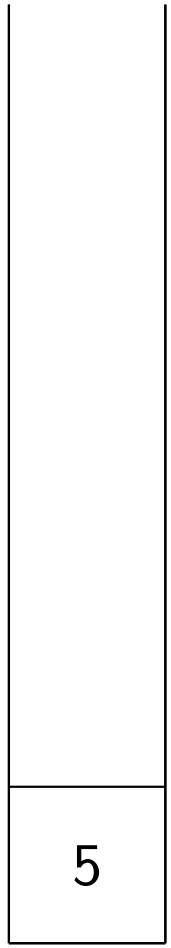
Postfix Expressions - Evaluation



$$A + B + C \Longrightarrow AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \Longrightarrow 2 \quad 3 \quad + \quad 4 \quad +$$

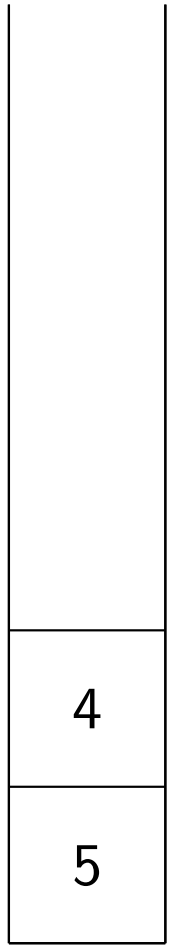
Postfix Expressions - Evaluation



$$A + B + C \implies AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \implies 2 \; 3 \; + \; 4 \; +$$

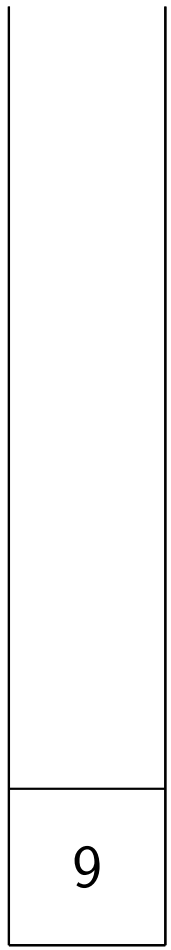
Postfix Expressions - Evaluation



$$A + B + C \implies AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \implies 2 \; 3 \quad + \quad 4 \quad +$$

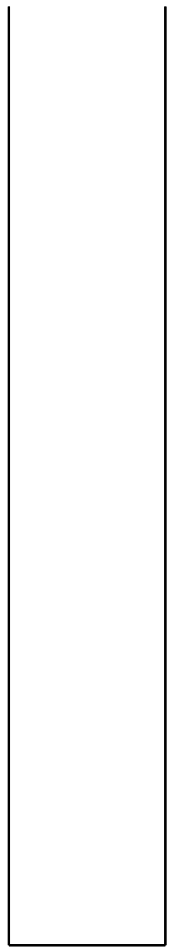
Postfix Expressions - Evaluation



$$A + B + C \Longrightarrow AB + C +$$

$$2 \quad + \quad 3 \quad + \quad 4 \Longrightarrow 2 \quad 3 \quad + \quad 4 \quad +$$

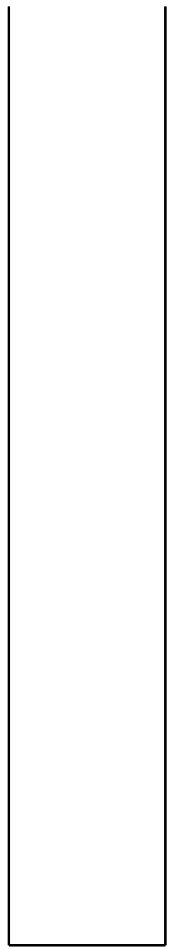
Postfix Expressions - Evaluation



$$A + B + C \Longrightarrow AB + C +$$

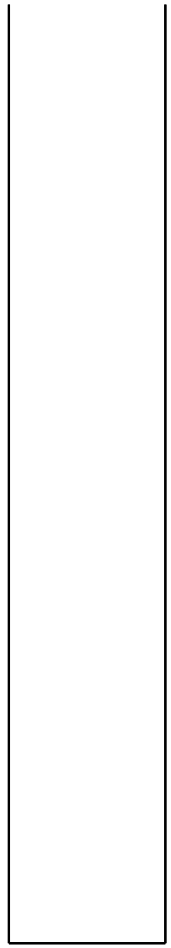
$$2 \quad + \quad 3 \quad + \quad 4 \Longrightarrow 2 \; 3 \quad + \quad 4 \quad + = \quad 9$$

Postfix Expressions - Evaluation



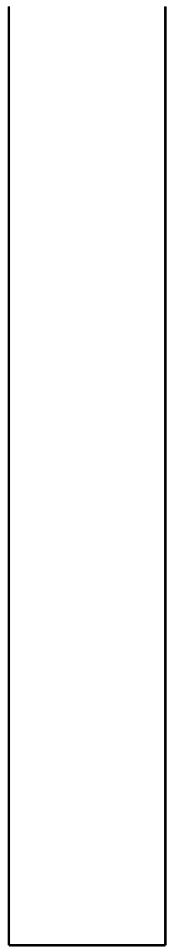
$$(A + B) * (C + D)$$

Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

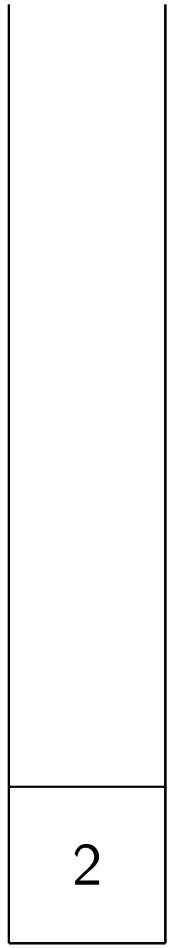
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

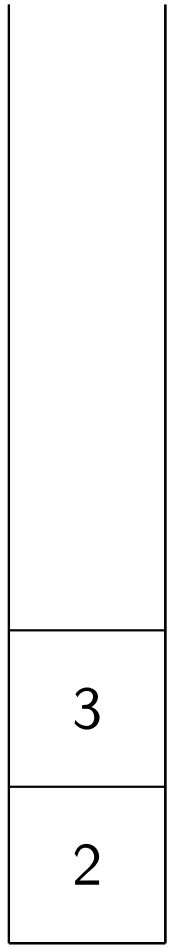
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

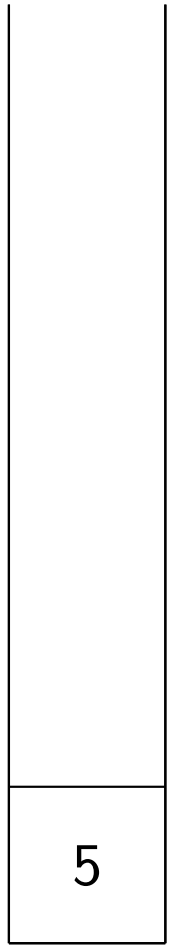
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

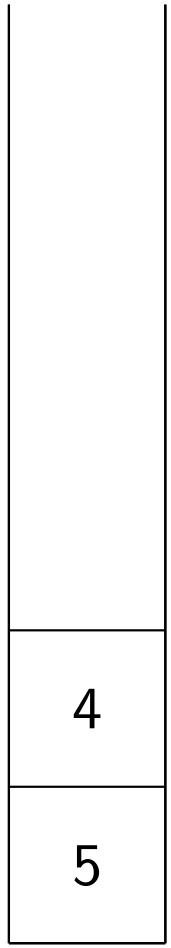
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

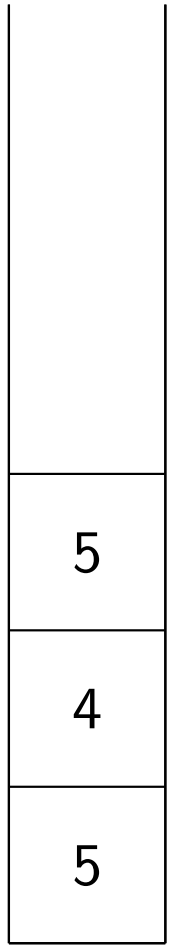
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

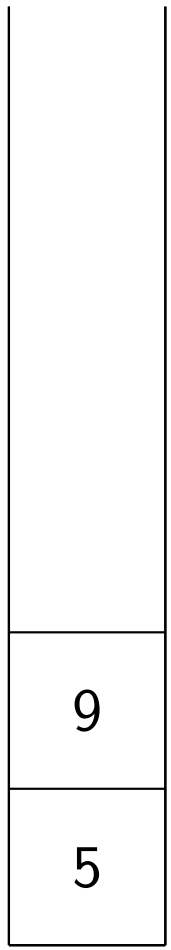
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

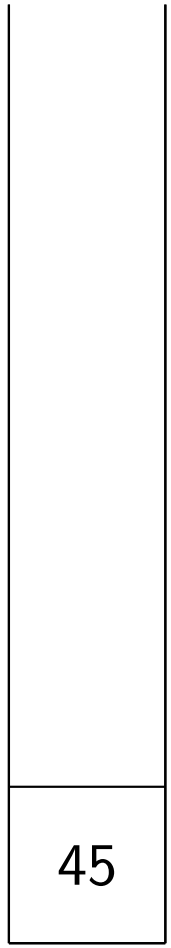
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

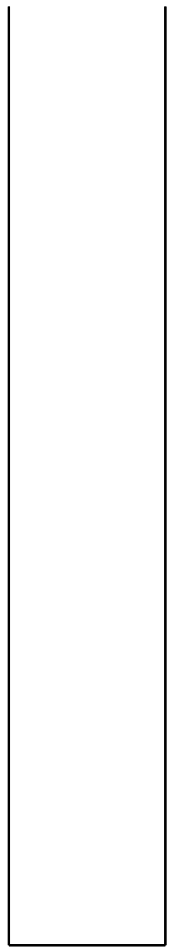
Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *$$

Postfix Expressions - Evaluation



$$(A + B) * (C + D) \implies AB + CD + *$$

$$(2\ +\ 3)\ *\ (4\ +\ 5) \implies 2\ 3\ +\ 4\ 5\ +\ *\ =\ 45$$

Why Postfix?

Why Postfix?

```
( 2 + 3 ) * ( 4 + 5 )
```

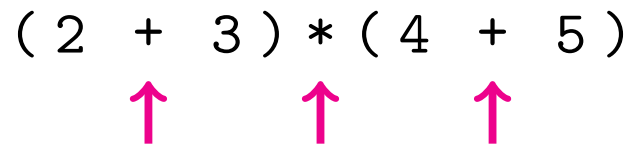
Why Postfix?

```
( 2  +  3 ) * ( 4  +  5 )
```

Tasks

- Among all the operators, find the operator with highest precedence.

Why Postfix?



Tasks

- Among all the operators, find the operator with highest precedence.
- Find all paranthesis, and look at expressions within paranthesis.

Why Postfix?

```
( 2 + 3 ) * ( 4 + 5 )
```

Tasks

- Among all the operators, find the operator with highest precedence.
- Find all paranthesis, and look at expressions within paranthesis.

Why Postfix?

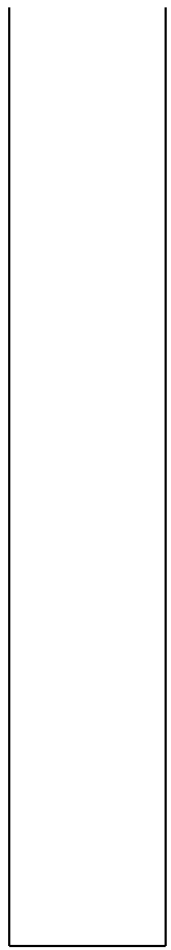
```
( 2 + 3 ) * ( 4 + 5 )
```

Tasks

- Among all the operators, find the operator with highest precedence.
- Find all paranthesis, and look at expressions within paranthesis.
- etc.

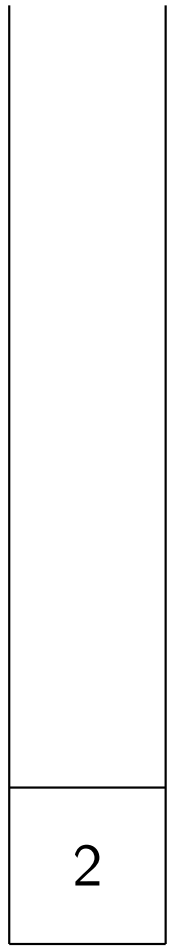
Why Postfix?

```
2 3 + 4 5 + *
```



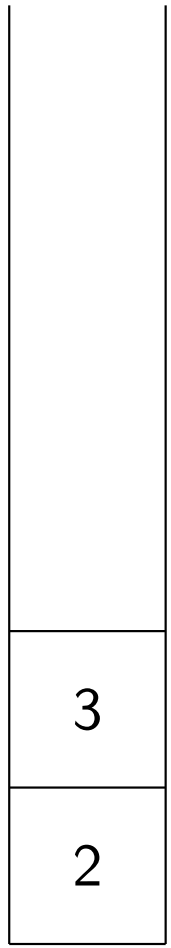
Why Postfix?

2 3 + 4 5 + *



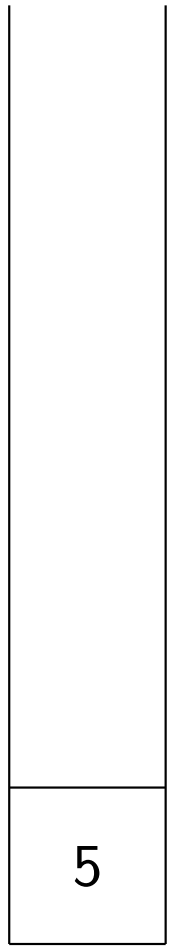
Why Postfix?

2 3 + 4 5 + *



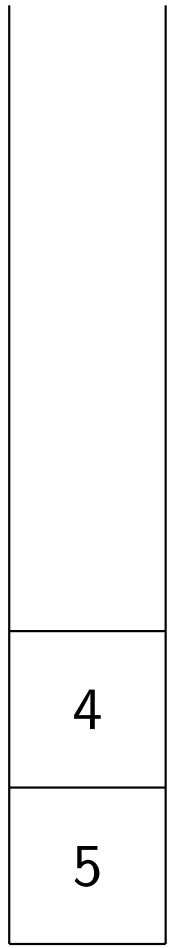
Why Postfix?

2 3 + 4 5 + *



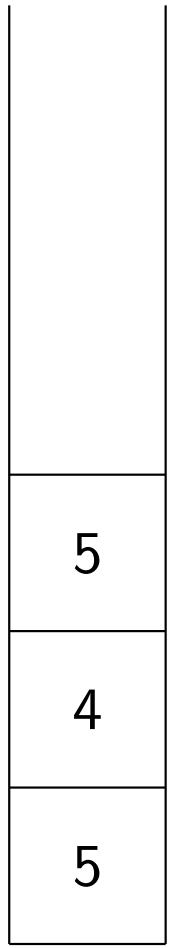
Why Postfix?

2 3 + 4 5 + *



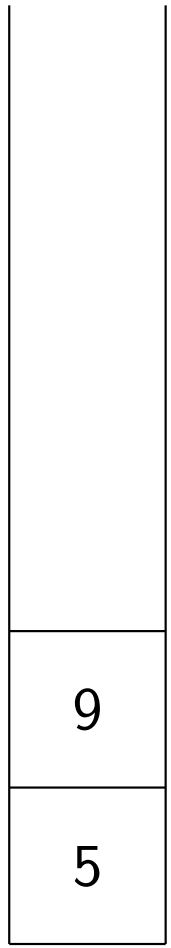
Why Postfix?

2 3 + 4 5 + *



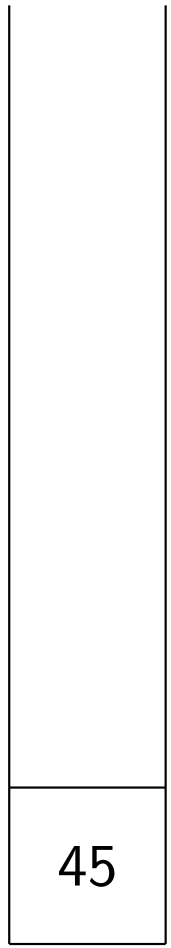
Why Postfix?

2 3 + 4 5 + *



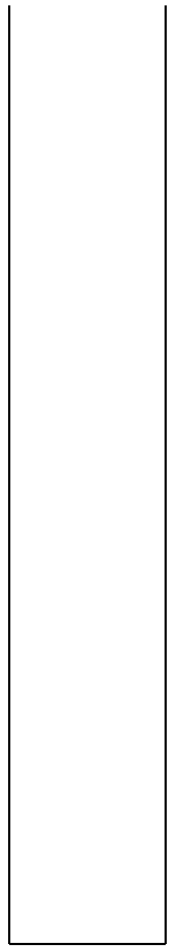
Why Postfix?

2 3 + 4 5 + *



Why Postfix?

2 3 + 4 5 + * = 45



Why Postfix?

Postfix Expression

- Evaluate from left to right.

Why Postfix?

Postfix Expression

- Evaluate from left to right.

Infix Expression

- Among all the operators, find the operator with highest precedence.
- Find all paranthesis, and look at expressions within paranthesis.
- etc.

Why Postfix?

Postfix Expression

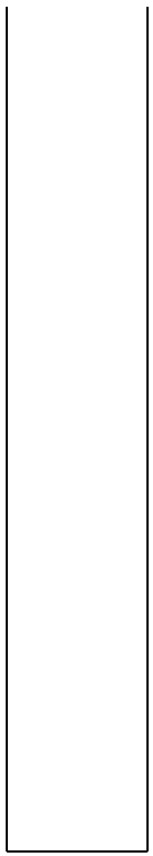
- Evaluate from left to right.

Infix Expression

- Among all the operators, find the operator with highest precedence.
- Find all paranthesis, and look at expressions within paranthesis.
- etc.

It is easier for computers to evaluate postfix expressions.

Infix to Postfix



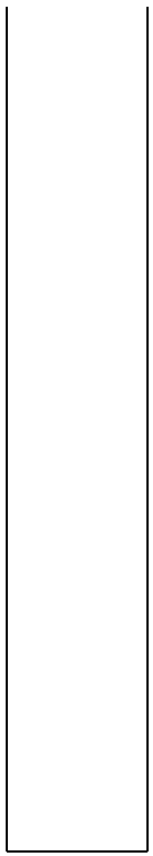
$$A + B \implies AB+$$

Input

$A + B$

Output

Infix to Postfix



$$A + B \implies AB+$$

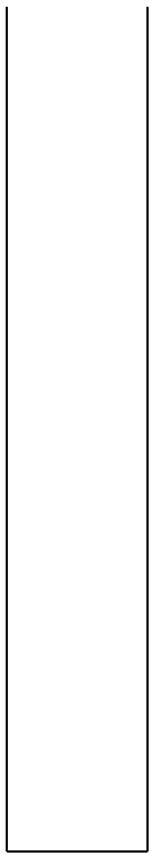
Input

$A + B$

Output

Input Operand $\Longrightarrow$ Print

Infix to Postfix



$A + B \implies AB+$

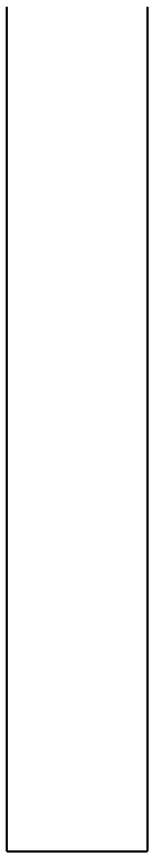
Input

$A + B$

Output

A

Infix to Postfix



$$A + B \implies AB+$$

Input

$A + B$

Output

A

Rules

Input Operand $\Longrightarrow$ Print

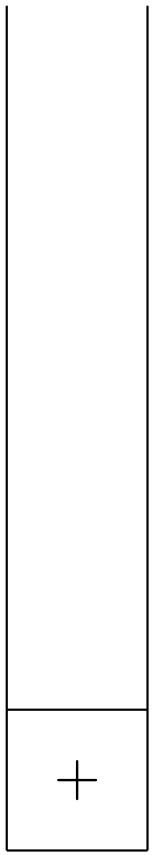
Input Operator $+$ Empty Stack

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

Infix to Postfix



$A + B \Longrightarrow AB+$

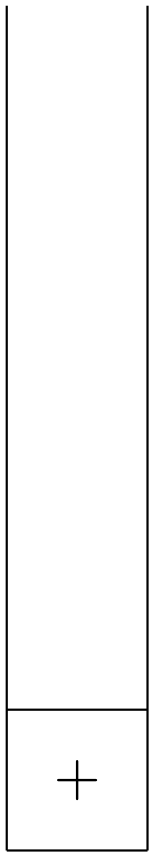
Input

$A + B$

Output

A

Infix to Postfix



$A + B \Longrightarrow AB+$

Input

$A + B$

Output

AB

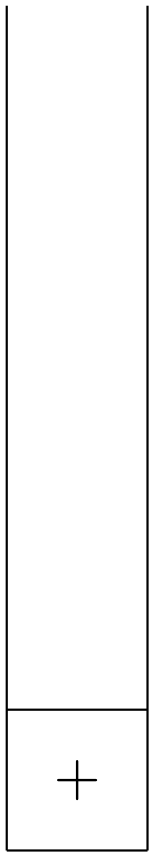
Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Infix to Postfix



$A + B \implies AB+$

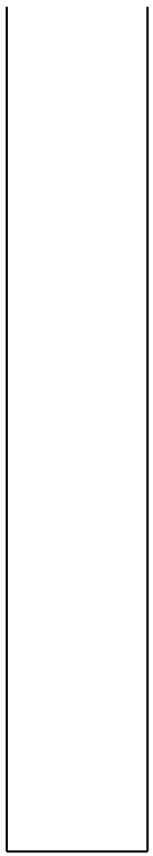
Input

$A + B$

Output

AB

Infix to Postfix



$$A + B \implies AB+$$

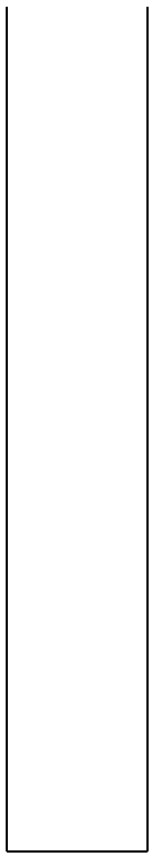
Input

$A + B$

Output

$AB +$

Infix to Postfix



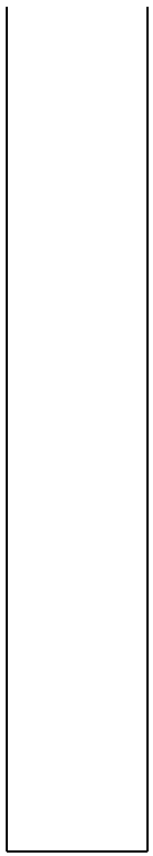
$$A + B + C \implies AB + C+$$

Input

$A + B + C$

Output

Infix to Postfix



$$A + B + C \implies AB + C+$$

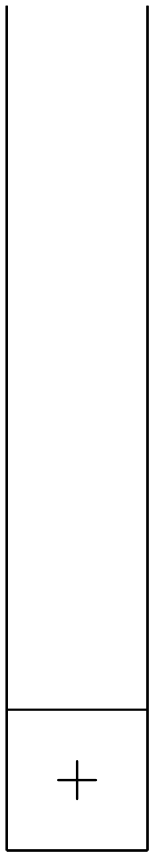
Input

$A + B + C$

Output

A

Infix to Postfix



$$A + B + C \implies AB + C+$$

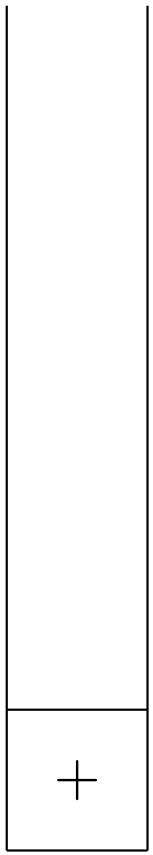
Input

$A + B + C$

Output

A

Infix to Postfix



$$A + B + C \implies AB + C+$$

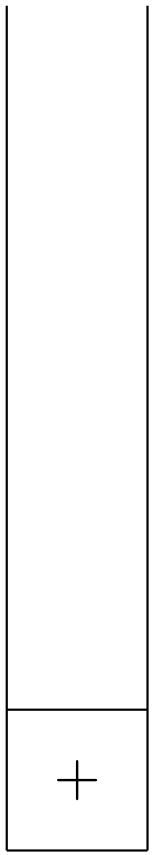
Input

$A + B + C$

Output

AB

Infix to Postfix



$$A + B + C \implies AB + C+$$

Input

$A + B + C$

Output

AB

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator

Rules

Input Operand $\Longrightarrow$ Print

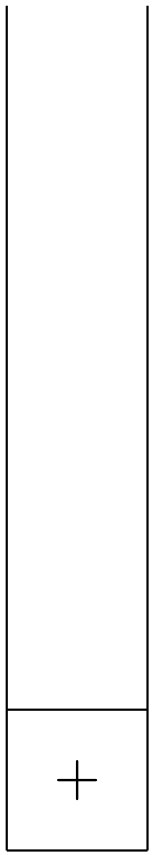
Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator $\Longrightarrow$ Push Operator

Infix to Postfix



$$A + B + C \implies AB + C+$$

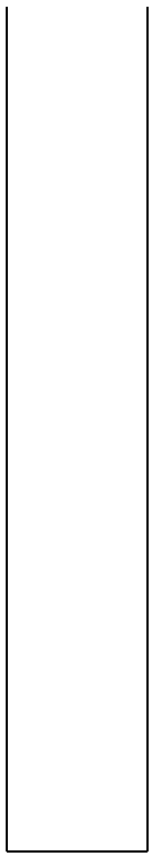
Input

$A + B + C$

Output

AB

Infix to Postfix



$$A + B + C \implies AB + C+$$

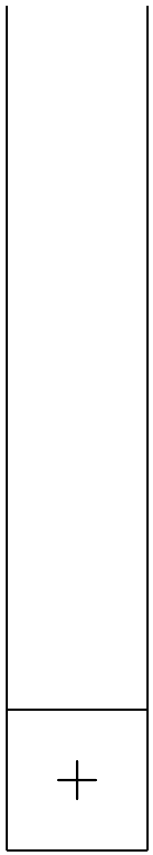
Input

$A + B + C$

Output

$AB +$

Infix to Postfix



$$A + B + C \implies AB + C+$$

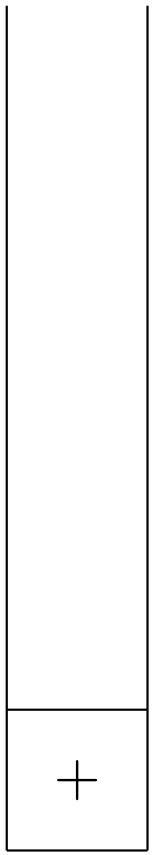
Input

$A + B + C$

Output

$AB +$

Infix to Postfix



$$A + B + C \Longrightarrow AB + C+$$

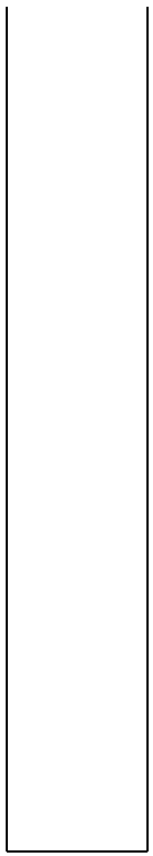
Input

$A + B + C$

Output

$AB + C$

Infix to Postfix



$$A + B + C \implies AB + C+$$

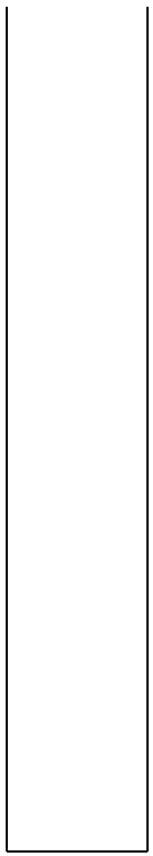
Input

$$A + B + C$$

Output

$$AB + C +$$

Infix to Postfix



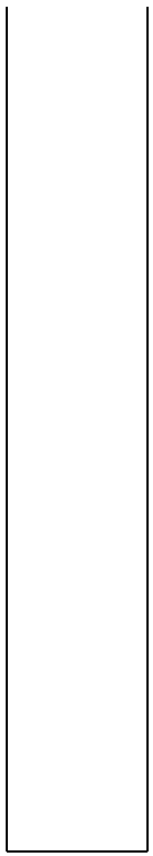
$$A + B * C + D \implies ABC * +D+$$

Input

$A + B * C + D$

Output

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

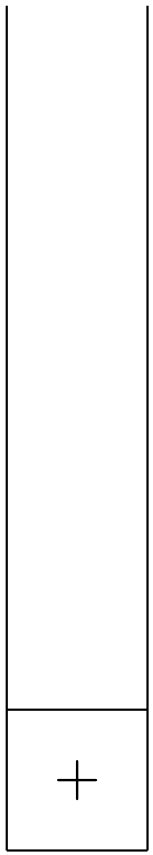
Input

$A + B * C + D$

Output

A

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

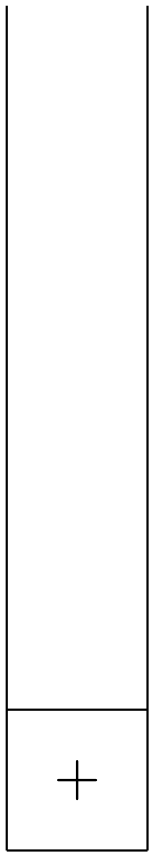
Input

$A + B * C + D$

Output

A

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

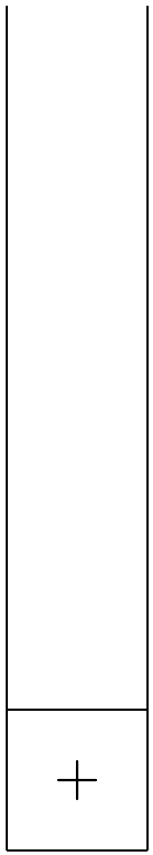
Input

$A + B * C + D$

Output

AB

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

Input

$A + B * C + D$

Output

AB

Rules

Input Operand $\Longrightarrow$ Print

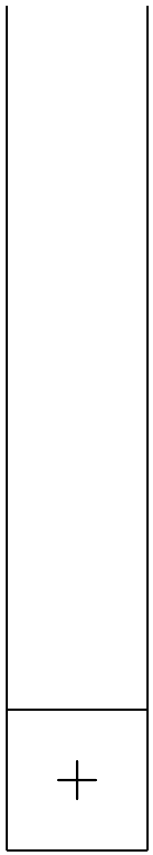
Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator $\Longrightarrow$ Push Operator

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

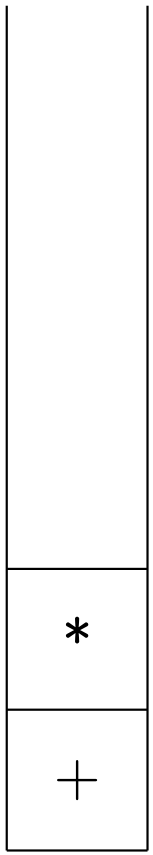
Input

$A + B * C + D$

Output

AB

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

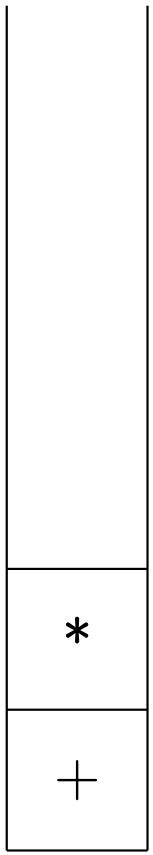
Input

$A + B * C + D$

Output

AB

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

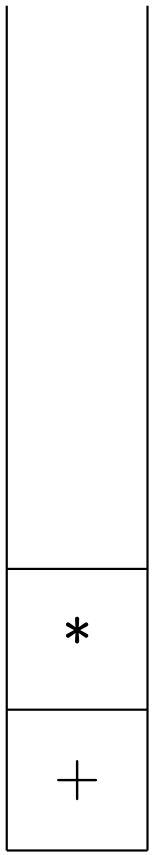
Input

$A + B * C + D$

Output

ABC

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

Input

$A + B * C + D$

Output

ABC

Rules

Input Operand $\Longrightarrow$ Print

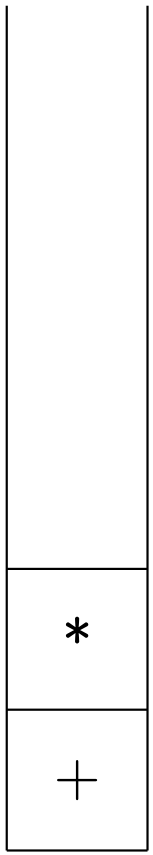
Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator $\Longrightarrow$ Push Operator

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

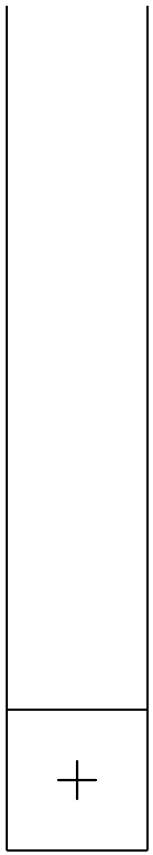
Input

$A + B * C + D$

Output

ABC

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

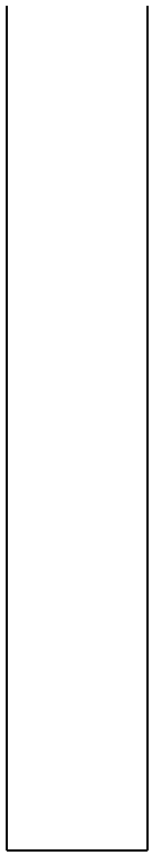
Input

$A + B * C + D$

Output

$ABC *$

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

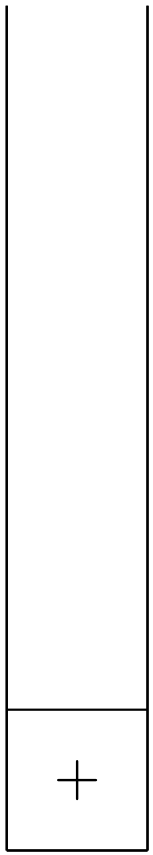
Input

$$A + B * C + D$$

Output

$$ABC * +$$

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

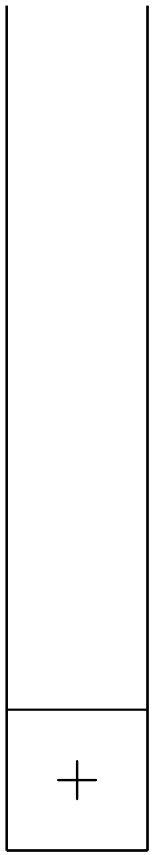
Input

$$A + B * C \color{red}{+} D$$

Output

$$ABC * \ +$$

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

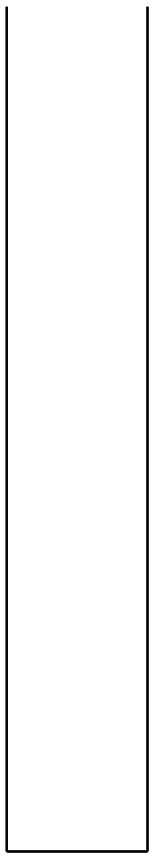
Input

$A + B * C + D$

Output

$ABC * \ + D$

Infix to Postfix



$$A + B * C + D \implies ABC * +D+$$

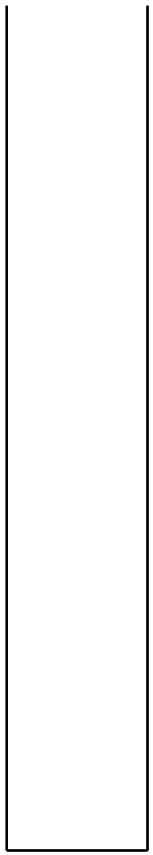
Input

$A + B * C + D$

Output

$ABC * + D +$

Infix to Postfix



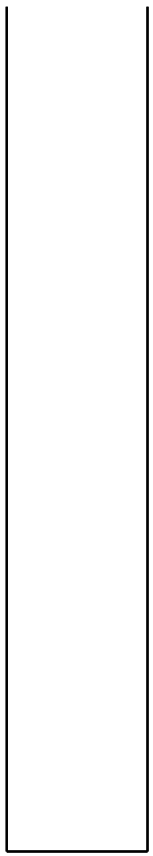
$$(A + B) * (C + D) \implies AB + CD + *$$

Input

$$(A + B) * (C + D)$$

Output

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

Input

$$(A + B) * (C + D)$$

Output

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

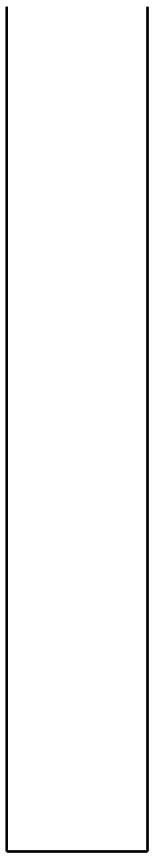
End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator $\Longrightarrow$ Push Operator

Open Paranthesis $\Longrightarrow$ Put in Stack

Infix to Postfix



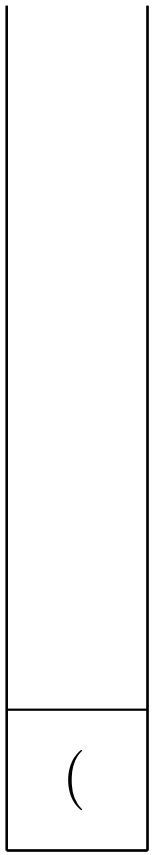
$$(A + B) * (C + D) \implies AB + CD + *$$

Input

$$(A + B) * (C + D)$$

Output

Infix to Postfix



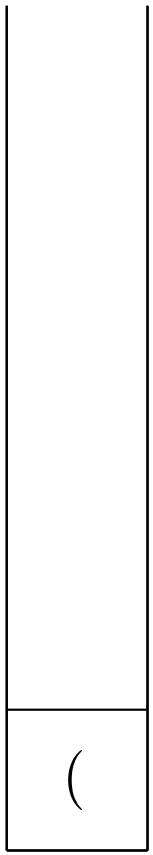
$$(A + B) * (C + D) \implies AB + CD + *$$

Input

$$(A + B) * (C + D)$$

Output

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

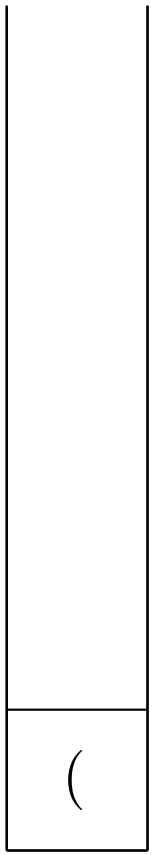
Input

$$(A + B) * (C + D)$$

Output

$$A$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

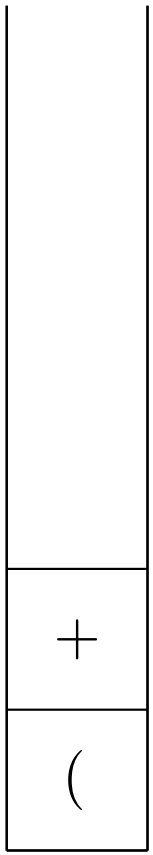
Input

$$(A + B) * (C + D)$$

Output

$$A$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

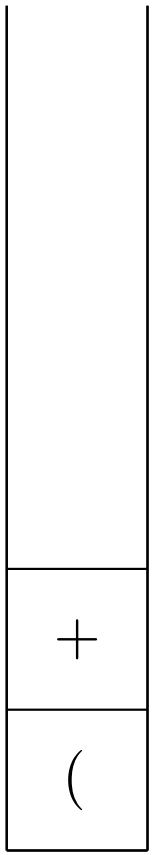
Input

$(A + B) * (C + D)$

Output

A

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

Input

$(A + B) * (C + D)$

Output

AB

Rules

Input Operand $\Longrightarrow$ Print

Input Operator $+$ Empty Stack $\Longrightarrow$ Push Operator

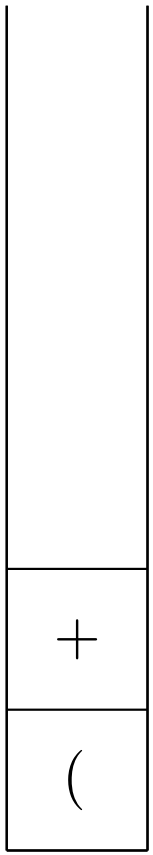
End of Input $\Longrightarrow$ Empty Stack

Input Operator $\leqslant$ Stack Operator $\Longrightarrow$ Pop and Print

Input Operator $>$ Stack Operator $\Longrightarrow$ Push Operator

Closed Paranthesis $\Longrightarrow$ Pop and Print till Open Paranthesis

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

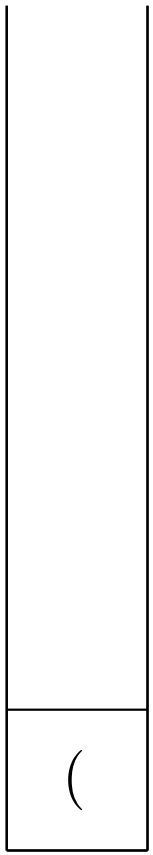
Input

$$(A + B) * (C + D)$$

Output

$$AB$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

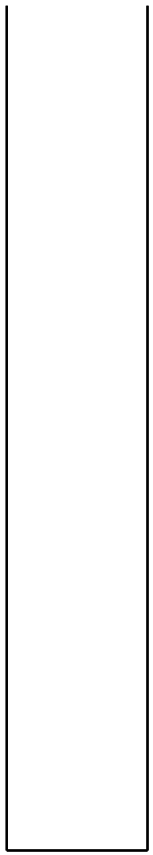
Input

$$(A + B) * (C + D)$$

Output

$$AB +$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

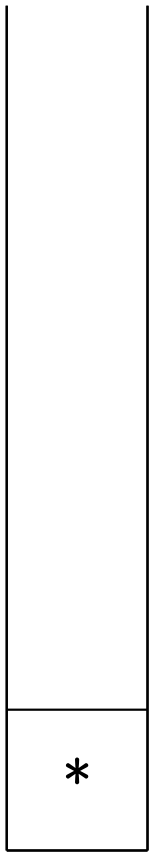
Input

$$(A + B) * (C + D)$$

Output

$$AB +$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

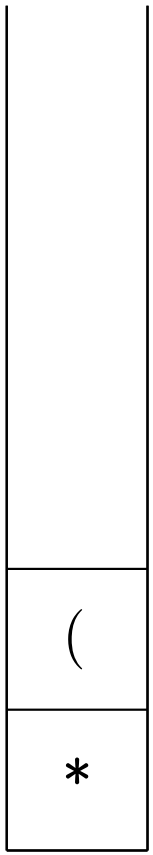
Input

$$(A + B) * (C + D)$$

Output

$$AB +$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

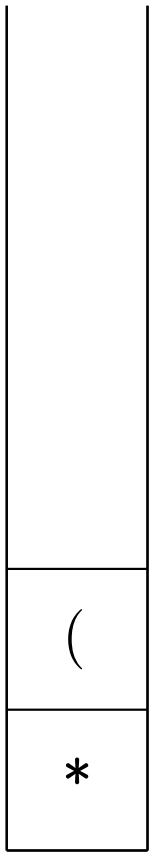
Input

$(A + B) * (C + D)$

Output

$AB +$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

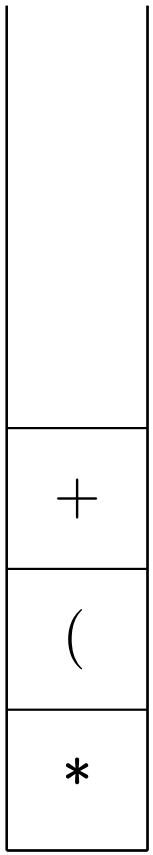
Input

$$(A + B) * (C + D)$$

Output

$$AB + C$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

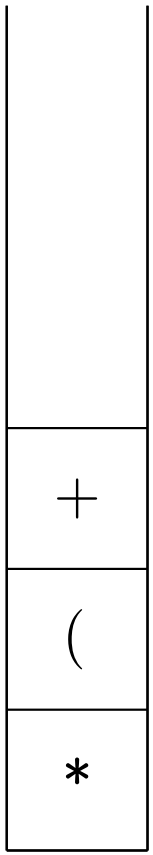
Input

$$(A + B) * (C + D)$$

Output

$$AB + C$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

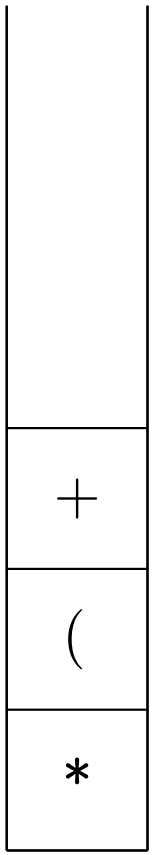
Input

$(A + B) * (C + D)$

Output

$AB + CD$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

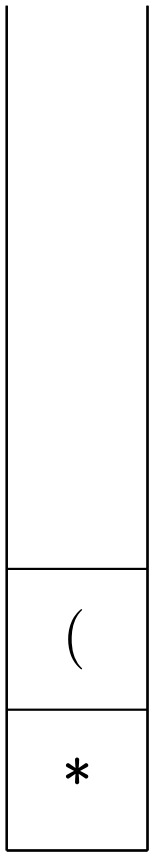
Input

$(A + B) * (C + D)$

Output

$AB + CD$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

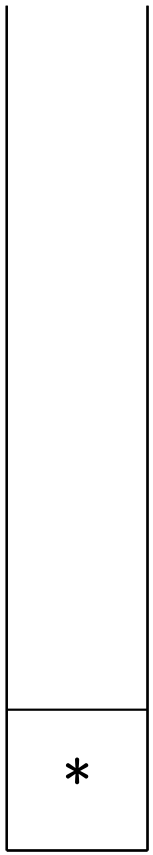
Input

$(A + B) * (C + D)$

Output

$AB + CD +$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

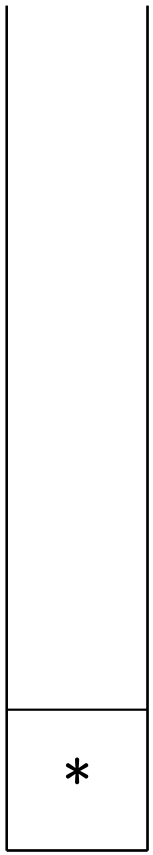
Input

$(A + B) * (C + D)$

Output

$AB + CD +$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

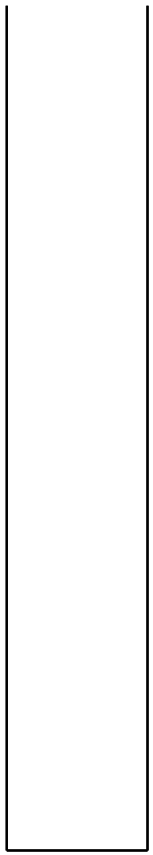
Input

$$(A + B) * (C + D)$$

Output

$$AB + CD +$$

Infix to Postfix



$$(A + B) * (C + D) \implies AB + CD + *$$

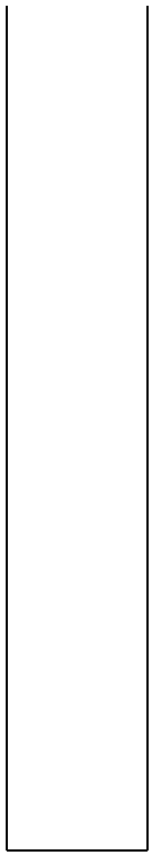
Input

$$(A + B) * (C + D)$$

Output

$$AB + CD + *$$

Infix to Postfix

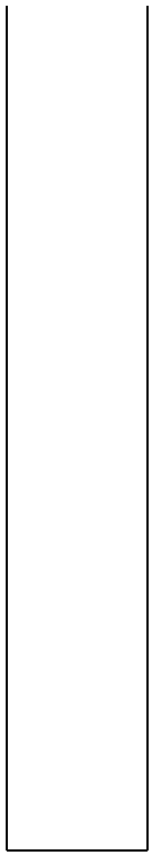


$$((A + B) * C)\hat{}(D + E) / (F - G)$$

Input

Output

Infix to Postfix

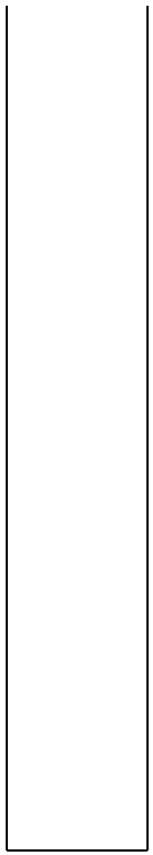


$$((A + B) * C) \$ (D + E) / (F - G)$$

Input

Output

Infix to Postfix

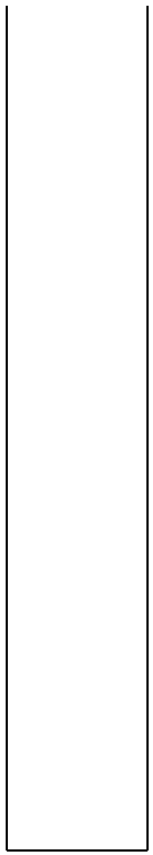


$$((AB+) * C) \$ (D + E) / (F - G)$$

Input

Output

Infix to Postfix

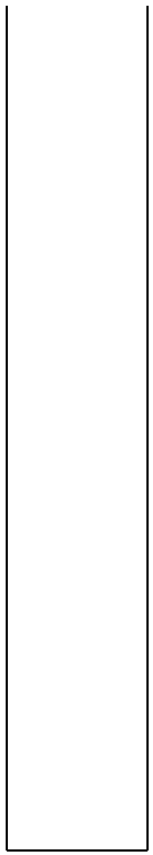


$((AB+) * C) \$ (DE+) / (F - G)$

Input

Output

Infix to Postfix

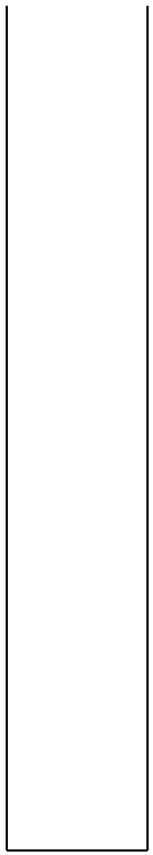


$((AB+) * C) \$ (DE+) / (FG-)$

Input

Output

Infix to Postfix

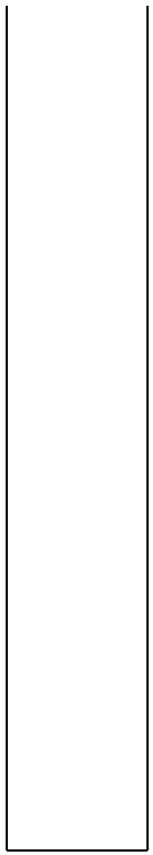


$((AB+)\,C*)\,\$\,(DE+)\,/\,(FG-)$

Input

Output

Infix to Postfix

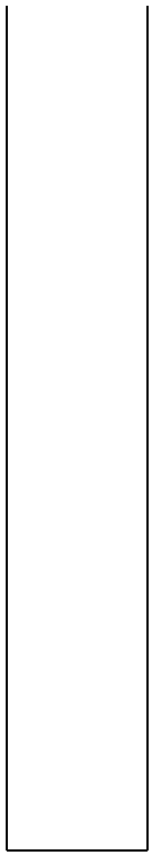


((AB+) C*) (DE+) $/ (FG−)

Input

Output

Infix to Postfix

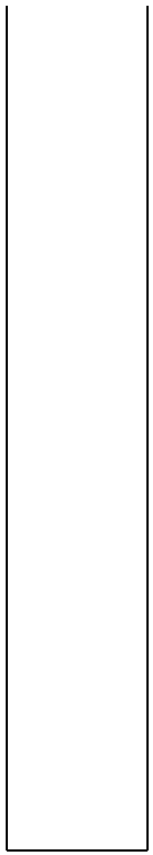


((AB+) C*) (DE+) $ (FG−) /

Input

Output

Infix to Postfix



AB+C*DE+$FG−/

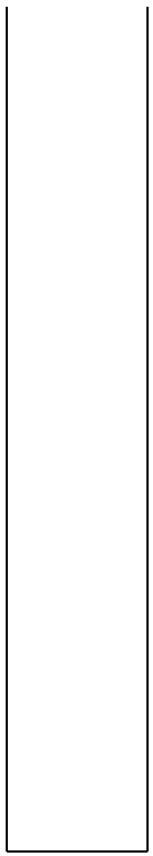
Input

Output

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

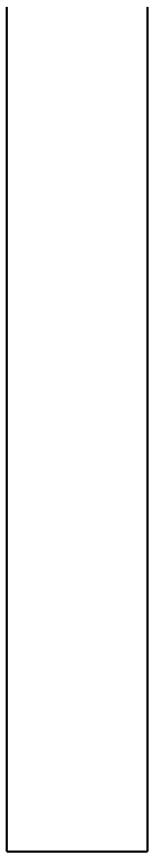
$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

Output

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$

Input

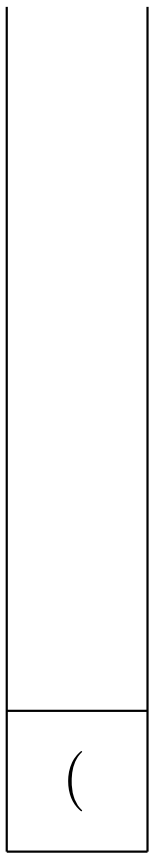
$$((A + B) * C)\$(D + E)/(F - G)$$

Output

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

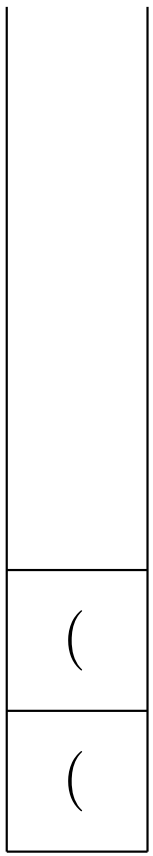
$$(((A + B) * C)\$(D + E)/(F - G)$$

Output

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

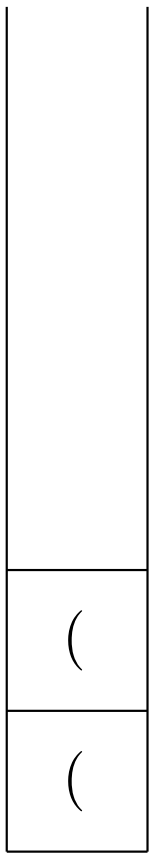
$((A + B) * C)\$(D + E)/(F - G)$

Output

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$



Input

$((A + B) * C)\$(D + E)/(F - G)$

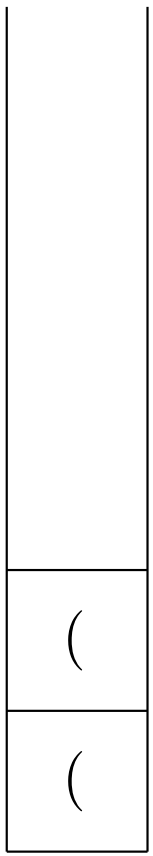
Output

A

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

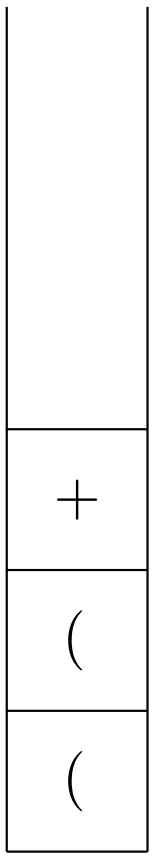
Output

A

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

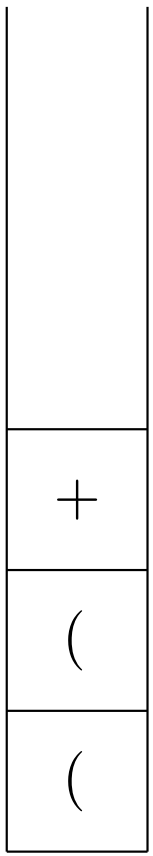
Output

A

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

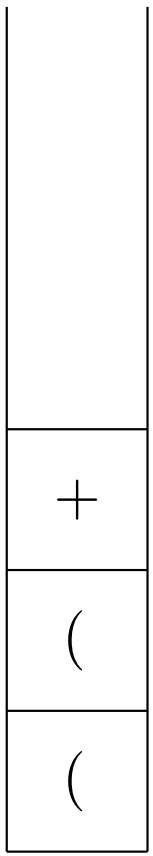
Output

AB

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

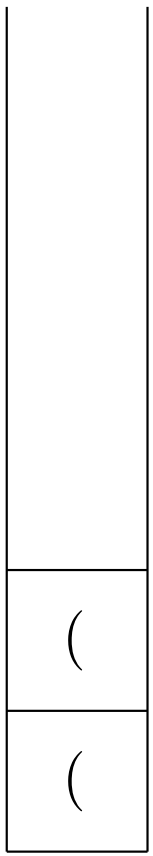
Output

AB

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

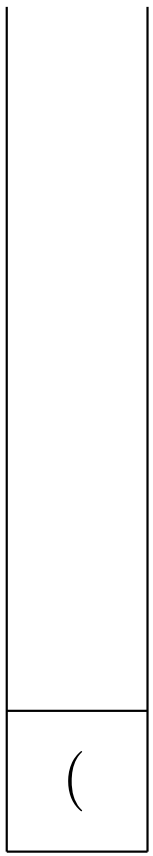
Output

$$AB +$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

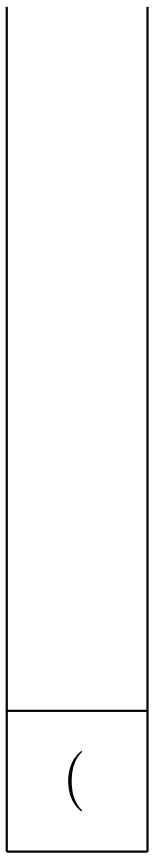
Output

$$AB +$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

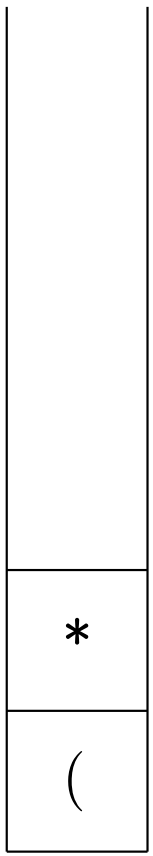
Output

$$AB +$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

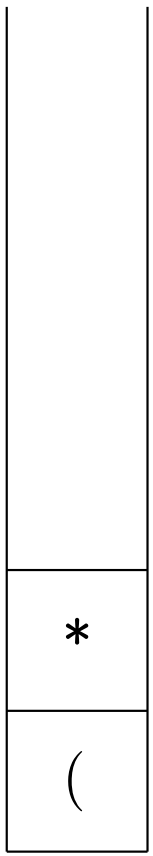
Output

$$AB +$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

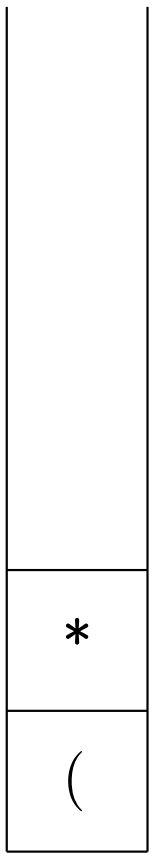
Output

$$AB + C$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

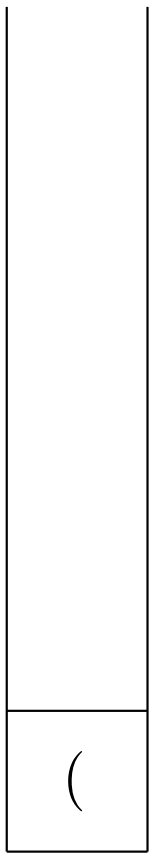
Output

$$AB + C$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



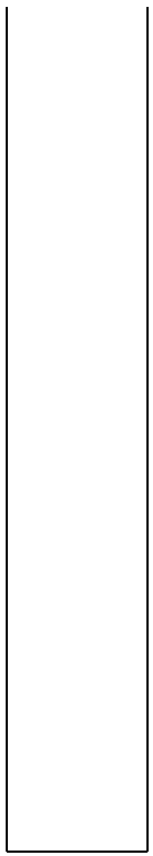
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C *$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$

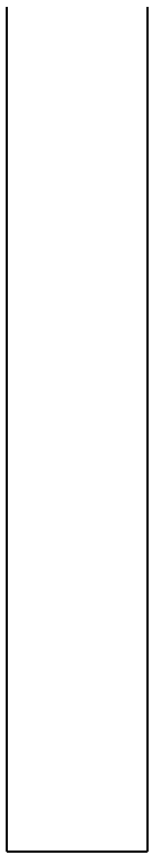
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C *$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \; AB+C*DE+\$FG-/$$

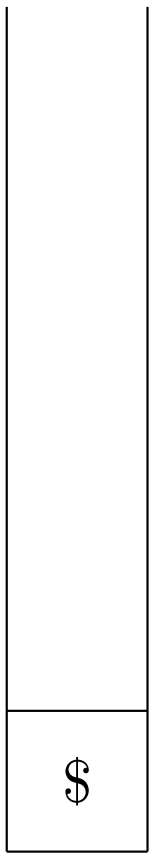
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C *$$

Infix to Postfix



$$((A + B) * C)\,\$\,(D + E)\,/\,(F - G)$$

$$\Longrightarrow \; AB{+}C{*}DE{+}\$FG{-}/$$

Input

$$((A + B) * C)\$(D + E)/(F - G)$$

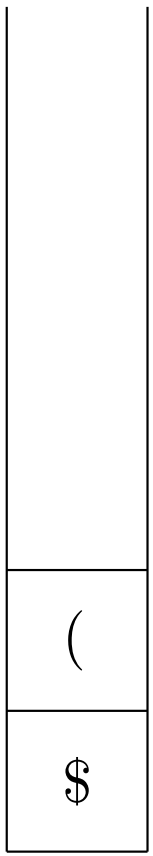
Output

$$AB + C *$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

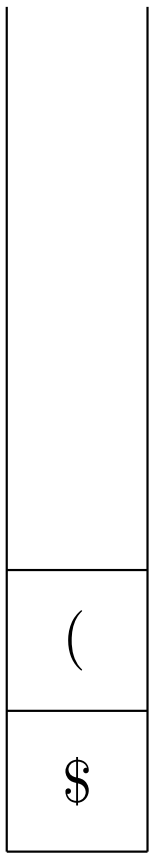
Output

$$AB + C *$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

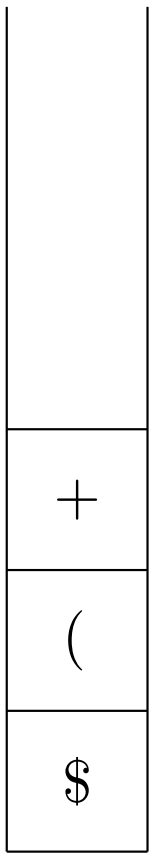
Output

$$AB + C * D$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



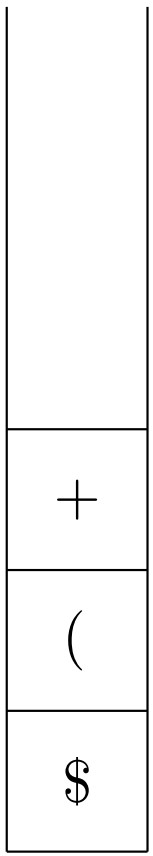
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * D$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$

Input

$$((A + B) * C)\$(D + E)/(F - G)$$

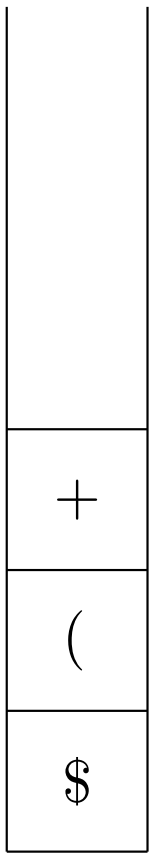
Output

$$AB + C * DE$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

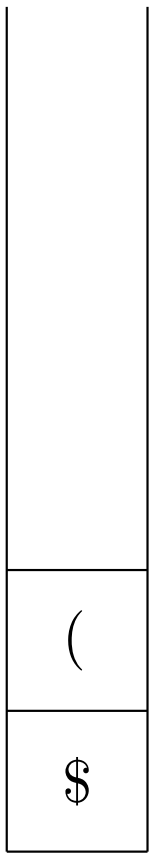
Output

$$AB + C * DE$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



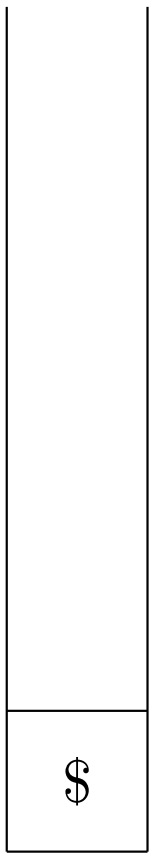
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE +$$

Infix to Postfix



$$((A + B) * C)\,\$\,(D + E)\,/\,(F - G)$$

$$\Longrightarrow \; AB{+}C{*}DE{+}\$FG{-}/$$

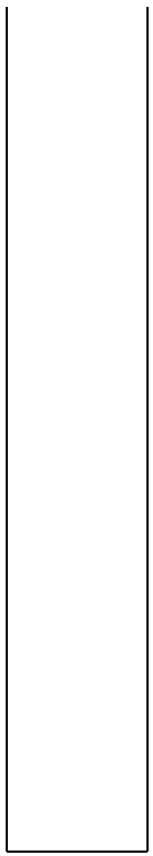
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE +$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$

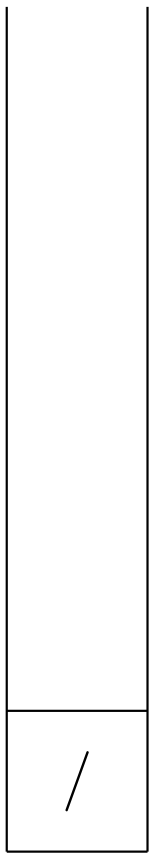
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$$$

Infix to Postfix



$$((A + B) * C)\,\$\,(D + E)\,/\,(F - G)$$

$$\Longrightarrow \; AB{+}C{*}DE{+}\$FG{-}/$$

Input

$$((A + B) * C)\$(D + E)/(F - G)$$

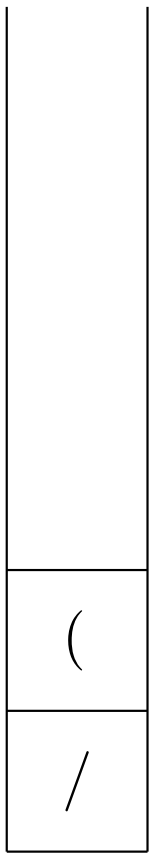
Output

$$AB + C * DE + \$$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$



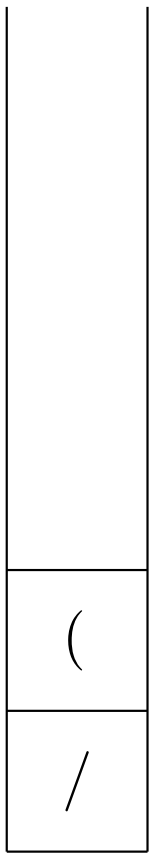
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB{+}C{*}DE{+}\$FG{-}/$$

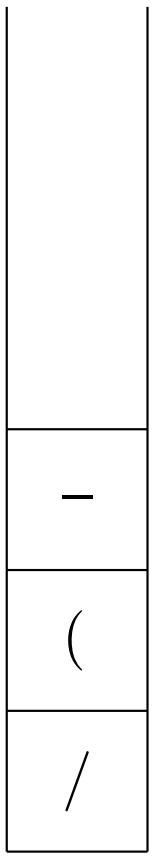
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$F$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$

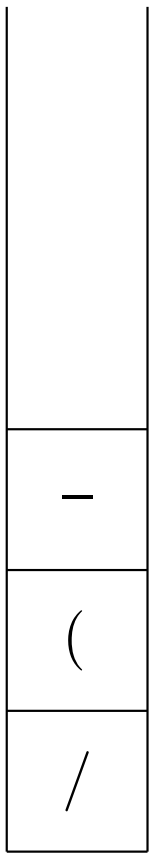
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$F$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB{+}C{*}DE{+}\$FG{-}/$$

Input

$$((A + B) * C)\$(D + E)/(F - G)$$

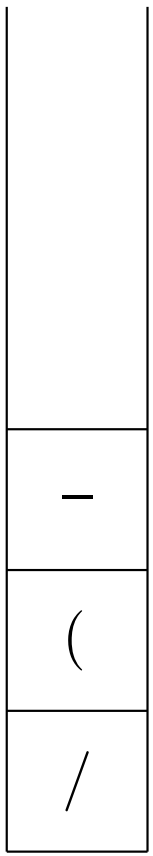
Output

$$AB + C * DE + \$FG$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$



Input

$$((A + B) * C)\$(D + E)/(F - G)$$

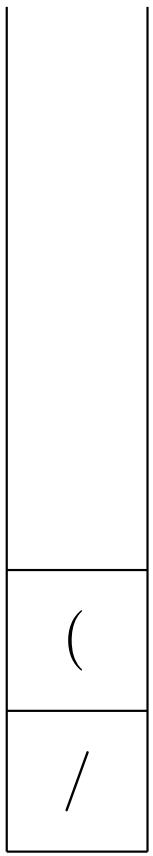
Output

$$AB + C * DE + \$FG$$

Infix to Postfix

$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$



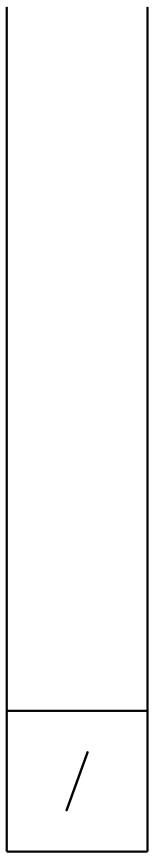
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$FG -$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow \text{AB+C*DE+\$FG-/}$$

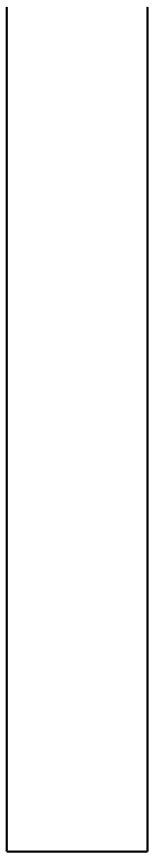
Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$FG -$$

Infix to Postfix



$$((A + B) * C) \$ (D + E) / (F - G)$$

$$\Longrightarrow AB+C*DE+\$FG-/$$

Input

$$((A + B) * C)\$(D + E)/(F - G)$$

Output

$$AB + C * DE + \$FG - /$$