

Infix to Postfix Conversion

- We use a stack
- When an operand is read, output it
- When an operator is read
 - Pop until the top of the stack has an element of lower precedence
 - Then push it
- When) is found, pop until we find the matching (
- (has the lowest precedence when in the stack
- but has the highest precedence when in the input
- When we reach the end of input, pop until the stack is empty

Infix to Postfix Conversion

Example 1

- $3+4*5/6$

Infix to Postfix Conversion

Example 1

- 3+4*5/6
- Stack:
- Output:

Infix to Postfix Conversion

Example 1

- $3\underline{+}4^*5/6$
- Stack:
- Output: 3

Infix to Postfix Conversion

Example 1

- $3+4^*5/6$
- Stack: +
- Output: 3

Infix to Postfix Conversion

Example 1

- $3+4\underline{\cdot}5/6$
- Stack: +
- Output: 3 4

Infix to Postfix Conversion

Example 1

- $3+4*\underline{5}/6$
- Stack: + *
- Output: 3 4

Infix to Postfix Conversion

Example 1

- $3+4*5/6$
- Stack: + *
- Output: 3 4 5

Infix to Postfix Conversion

Example 1

- $3+4^*5/6$
- Stack: +
- Output: 3 4 5 *

Infix to Postfix Conversion

Example 1

- $3+4^*5/\underline{6}$
- Stack: + /
- Output: 3 4 5 *

Infix to Postfix Conversion

Example 1

- $3+4*5/6$
- Stack: + /
- Output: 3 4 5 * 6

Infix to Postfix Conversion

Example 1

- $3+4*5/6$
- Stack: +
- Output: 3 4 5 * 6 /

Infix to Postfix Conversion

Example 1

- $3+4*5/6$
- Stack:
- Output: 3 4 5 * 6 / +
- Done!

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack:
- Output:

Infix to Postfix Conversion

Example 2

- $(\underline{300}+23)^*(43-21)/(84+7)$
- Stack: (
- Output:

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: (
- Output: 300

Infix to Postfix Conversion

Example 2

- $(300 + \underline{23})^* (43 - 21) / (84 + 7)$
- Stack: (+
- Output: 300

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: (+
- Output: 300 23

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: (
- Output: 300 23 +

Infix to Postfix Conversion

Example 2

- $(300+23) * (43-21) / (84+7)$
- Stack:
- Output: 300 23 +

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: *
- Output: 300 23 +

Infix to Postfix Conversion

Example 2

- $(300+23)^* \underline{(43-21)}/(84+7)$
- Stack: * (
- Output: 300 23 +

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43_21)/(84+7)$
- Stack: * (
- Output: 300 23 + 43

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-\underline{21})/(84+7)$
- Stack: * (-
- Output: 300 23 + 43

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: * (-
- Output: 300 23 + 43 21

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: * (
- Output: 300 23 + 43 21 -

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: *
- Output: 300 23 + 43 21 -

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack:
- Output: 300 23 + 43 21 - *

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: /
- Output: 300 23 + 43 21 - *

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: / (
- Output: 300 23 + 43 21 - *

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84\underline{+}7)$
- Stack: / (
- Output: 300 23 + 43 21 - * 84

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+\underline{7})$
- Stack: / (+
- Output: 300 23 + 43 21 - * 84

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: / (+
- Output: 300 23 + 43 21 - * 84 7

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: / (
- Output: 300 23 + 43 21 - * 84 7 +

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack: /
- Output: 300 23 + 43 21 - * 84 7 +

Infix to Postfix Conversion

Example 2

- $(300+23)^*(43-21)/(84+7)$
- Stack:
- Output: 300 23 + 43 21 - * 84 7 + /
- Done!

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack:
- Output:

Infix to Postfix Conversion

Example 3

- $(\underline{4}+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: (
- Output:

Infix to Postfix Conversion

Example 3

- $(4\underline{+}8)^*(6-5)/((3-2)^*(2+2))$
- Stack: (
- Output: 4

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: (+
- Output: 4

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: (+
- Output: 4 8

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: (
- Output: 4 8 +

Infix to Postfix Conversion

Example 3

- $(4+8)_(6-5)/((3-2)^*(2+2))$
- Stack:
- Output: 4 8 +

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: *
- Output: 4 8 +

Infix to Postfix Conversion

Example 3

- $(4+8)^*(\underline{6}-5)/((3-2)^*(2+2))$
- Stack: * (
- Output: 4 8 +

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: * (
- Output: 4 8 + 6

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: * (-
- Output: 4 8 + 6

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/(3-2)^*(2+2)$
- Stack: * (-
- Output: 4 8 + 6 5

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/(3-2)^*(2+2)$
- Stack: * (
- Output: 4 8 + 6 5 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: *
- Output: 4 8 + 6 5 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack:
- Output: 4 8 + 6 5 - *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/(3-2)^*(2+2)$
- Stack: /
- Output: 4 8 + 6 5 - *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/(3-2)^*(2+2)$
- Stack: / (
- Output: 4 8 + 6 5 - *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((\underline{3}-2)^*(2+2))$
- Stack: / ((
- Output: 4 8 + 6 5 - *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3_2)^*(2+2))$
- Stack: / ((
- Output: 4 8 + 6 5 - * 3

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-\underline{2})^*(2+2))$
- Stack: / ((-
- Output: 4 8 + 6 5 - * 3

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / ((-
- Output: 4 8 + 6 5 - * 3 2

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / ((
- Output: 4 8 + 6 5 - * 3 2 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)_*(2+2))$
- Stack: / (
- Output: 4 8 + 6 5 - * 3 2 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / (*
- Output: 4 8 + 6 5 - * 3 2 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(\underline{2}+2))$
- Stack: / (* (
- Output: 4 8 + 6 5 - * 3 2 -

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2\underline{+}2))$
- Stack: / (* (
- Output: 4 8 + 6 5 - * 3 2 - 2

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+\underline{2}))$
- Stack: / (* (+
- Output: 4 8 + 6 5 - * 3 2 - 2

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / (* (+
- Output: 4 8 + 6 5 - * 3 2 - 2 2

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / (* (
- Output: 4 8 + 6 5 - * 3 2 - 2 2 +

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / (*
- Output: 4 8 + 6 5 - * 3 2 - 2 2 +

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: / (
- Output: 4 8 + 6 5 - * 3 2 - 2 2 + *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack: /
- Output: 4 8 + 6 5 - * 3 2 - 2 2 + *

Infix to Postfix Conversion

Example 3

- $(4+8)^*(6-5)/((3-2)^*(2+2))$
- Stack:
- Output: 4 8 + 6 5 - * 3 2 - 2 2 + * /
- Done!