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3/11/20

CS2400

Assignment #2 Tasks 1, 2, 3, 4

Task 1: Check Balance

{𝑎 ( 𝑏 ∗ 𝑐 ) / [𝑑 + 𝑒] / 𝑓 ) − 𝑔}

) ] }

( [ )

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| { | (  { | { | [  { | { | )  { | { |

**Unbalanced Expression**. The final left parenthesis needs a right parenthesis before it.

Task 2: Convert to Post Fix

(𝑎 − 𝑏 ∗ 𝑐) / (𝑑 ∗ 𝑒 ∗ 𝑓 + 𝑔)

|  |  |  |
| --- | --- | --- |
| Next Character  In Infix Expression | Postfix  Form | Operator  Stack |
| (  a  -  b  \*  c  )  /  (  d  \*  e  \*  f  +  g  ) | a  a  ab  abc  abc\*  abc\*-  abc\*- d  abc\*- de  abc\*- def  abc\*- def \*  abc\*- def \* \*  abc\*- def \* \* g  abc\*- def \* \* g +  abc\*- def \* \* g + / | (  ( -  ( -  ( - \*  ( -  / (  / ( \*  / ( \*  / ( \* \*  / ( \*  / (  / ( +  / ( |

Final answer in postfix form: **abc\*- def \* \* g + /**

Task 3: Evaluate Postfix

𝑎 𝑏 ∗ 𝑐 𝑎 − / 𝑑 𝑒 ∗ +

a = 2, b = 3, c = 4, d = 5, and e = 6

\* 2 \* 3 - 4 - 2 /

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2 | 3  2 |  | 6 | 2  4  6 | 6 | 2  6 |

6 / 2 \* 5 \* 6 + 3 + 30

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 3 | 5  3 | 6  5  3 | 3 | 30  3 |  | 33 |

Final answer: 𝑎 𝑏 ∗ 𝑐 𝑎 − / 𝑑 𝑒 ∗ + = **33**

Task 4: Evaluate Infix

(𝑑 ∗ 𝑓 + 1) ∗ 𝑒 / (𝑎 ^ 𝑏 − 𝑏 ∗ 𝑐 + 1) − 72

a = 2, b = 3, c = 4, d = 5, e = 6, and f = 7

5 \* 7 1 + 35

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7  5  1 | \*  + | 1 | + | 35  1 | + |  |  | 6  36 | \* |

2 ^ 3 3 \* 4 8 - 12

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3  2  4  3  1  216 | ^  \*  -  +  / | 4  3  1  216 | \*  -  +  / | 8  1  216 | -  +  / | 12  8  1  216 | -  +  / | 1  216 | +  / |

-4 + 1 216 / -3

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| -4  1  216 | +  / | 216 | / | -3  216 | / | -72 |  | 72  -72 | - |

-72 - 72

|  |  |
| --- | --- |
| -144 |  |

Final Answer: **-144**