

Task 1: Read and Study the textbook from page 164 to page 168, “A Problem Solved: Transforming an Infix Expression to a Postfix Expression”. Use a stack to manually convert the following infix expression to postfix expression: $a * b / (c - a) + d * e$

Note: Your answer sheet must show the conversion process step by step, presenting the status of the stack after each step using a table with three columns (like Figure 5-9 on page 168 of the textbook).

Infix expression to postfix expression

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

| Next Character from Infix Expression | Postfix Form | Operator Stack (bottom to top) |
|--------------------------------------|--------------|--------------------------------|
| a | a | |
| * | a | * |
| b | ab | * |
| / | ab* | |
| | ab* | / |
| (| ab* | /(|
| c | ab*c | /(|
| - | ab*c | /(- |
| a | ab*ca | /(- |
|) | ab*ca- | /(|
| | ab*ca- | / |
| | ab*ca-/ | |
| + | ab*ca-/ | + |
| d | ab*ca-/d | + |
| * | ab*ca-/d | +* |
| e | ab*ca-/de | +* |
| | ab*ca-/de*+ | |

Answer : The postfix expression is $ab*ca-/de*+$