Infix, Prefix, and Postfix Notation

1. Evaluate the following **prefix** expressions. Work from right to left.
2. + + - 6 2 \* 5 3 / 8 4 = 21 b. \* + 8 / -12 \* 2 3 6 = 36
3. Evaluate the following **postfix** expressions. Work from left to right.   
     
   a. 6 3 / 9 7 4 3 - + + \* = 34 b. 8 5 + 6 2 / + 9 - = 7
4. Use the following infix expressions to create an expression tree.  
     
   a. (2 \* 5) + (3 \* 7) – (10 / 2)

-

+ /

\* \* 10 2

2 5 3 7

1. 10 + 2 \* 5 + 7

**+**

**+ 7**

**10 \***

**2 5**

1. Given the following expression tree.

\*

/

-

+

+

A

B

C

D

E

F

1. Preform a preorder traversal to create a prefix expression.

**\* + A B / - C D + E F**

1. Preform a postorder traversal to create a postfix expression.

**A B + C D – E F + / \***

1. Use the following prefix expression to create an expression tree, then use a postorder traversal to convert the prefix expression into a postfix expression.  
     
   prefix: - / A B + + C D E postfix: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**- A B / C D + E + -**

**/ +**

**A B + E  
 C D**

1. Use the following prefix expression to create an expression tree, then use a postorder traversal to convert the prefix expression into a postfix expression.  
     
   prefix: \* + + A B C - D E postfix: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\* **A B + C + D E - \***

+ -

+ C D E

A B

1. Use the following postfix expression to create an expression tree, then use a preorder traversal to convert the postfix expression into a prefix expression.

postfix: 7 5 – 4 2 + \* prefix: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\* **\* - 7 5 + 4 2**

- +

7 5 4 2

1. Use the following postfix expression to create an expression tree, then use a preorder traversal to convert the postfix expression into a prefix expression.

postfix: 2 9 3 - + 5 7 4 + \* / prefix: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

/  **/ + 2 – 9 3 \* 5 + 7 4**

+ \*

2 - 5 +

9 3 7 4