**Reydel A. Ocon**

**WEEK 3 EXERCISES**

1. Convert the following infix expressions to postfix and prefix expressions:

a. **X x ( ( 3 + 4 / Y) – 2 )**

**Postfix:** X x 3 4 Y/+ – 2  
 **Prefix:** X x + 3 / 4 Y – 2

b. **(A + B) / (C - D x E)**

**Postfix:** A B+ C D x E-/

**Prefix**: /+A B -C D x E

c. **1 – ( 2 + 3 / (4 / 5 ) – 6 ^ ( 7 x ( 8 + 9 ) ) )**

**Postfix**: 1 – 2 3 4 5 / – 6 7 x 8 9 + ^/+

**Prefix**: 1 – + 2 / 3 ^ /4 5 – 6 7 x + 8 9

d. **A – B / C ^ D ^ E x F + G**

**Postfix**: A – B C D ^ E x F ^/ G+

**Prefix**: +/A – B ^ C ^ D E x F G

**2. Explain why the ordering of the operands in infix, prefix, and polish notations is always**

**the same. Only the positioning of the operators vary.**

Since the infix, prefix and polish notations is following the PEMDAS rule which means the precedence order for arithmetic operators places multiplication and division above addition and subtraction. If two operators of equal precedence appear, then a left-to-right ordering or associativity is used.

3. Convert the following postfix and prefix expressions to infix expressions:

**a. - + A B / C – D x E F**

**Infix**: ((A + B) - (C / (D - (E x F))))

**b. + / G H – J x K + x L M N**

**Infix:** ((G / H) + (J - (K \* ((L \* M) + N))))

**c. A B + C x D E / F + -**

**Infix**: (((A + B) \* C) - ((D / E) + F))

**d. G H J – K L x M N / - +**

**Infix:** (G x H) – ((K x L) / (M – N)