

```
for (string.length) {
```

```
    if (value)
```

```
        if (unary op next)
```

```
            do unary
```

```
            Valstk.push(string(i))
```

```
    else
```

```
        if (prec(op, nextop)
```

```
            do op();
```

```
            opstk.push(string(i))
```

```
}
```

```
do OP
```

```
do OP()
```

```
    while (Valstk > 1  $\wedge$  prec(refOp)  $\leq$  (prec(Opstk.top()))
```

```
        int x = Valstk.pop
```

```
        int y = Valstk.pop
```

```
        op = opstk.pop
```

```
        Valstk.push(x op y)
```

W)

b)

// some iterator that will go through string and parse properly

```

doMath(string)
    double currentN = nextValue(string)
    string op1 = nextDP(string)
    double currentN2 = nextValue(string)
    string op2 = nextDP(string)

    if (prec Op1 <= prec Op2)
        currentN
        Val.push(currentN op currentN2)
        doMath(string) // string minus the parts the
                        // iterator has seen
    else
        doMath(string)
        Val.push(currentN op currentN2)
        currentN
    
```

c) stack version: $O(n)$

n is the size of the string, since comparing precedence and $doDP()$ are constants, $cn + c = O(n)$

Recursion Version: $O(n)$

for linear recursion, it will recurse n times,
 n being length of string