Arithmetic Operations

In this section, we will take a look at "Arithmetic Operations"

- There are different methods with which we can perform arithemetic operations

expr

- For addition

```
$ expr 6 + 3
```

- For substraction

```
$ expr 6 - 3
```

- For Division

```
$ expr 6 / 3
```

- For Multiplication

```
$ expr 6 \* 3
```

- These can be used with vairable substitution as well

```
$ A=6
$ B=3
$ expr $A + $B
$ expr $A - $B
$ expr $A / $B
$ expr $A \* $B
```

expr

```
$ expr 6 + 3
9
```

```
$ expr 6  -  3
3
```

```
$ expr 6  /  3
2
```

```
$ expr 6  \*  3
18
```

```
$ A=6
$ B=3
```

```
$ expr $A  +  $B
9
```

```
$ expr $A  -  $B
3
```

```
$ expr $A  /  $B
2
```

```
$ expr $A \*  $B
18
```

Double Parentheses

- Another method for performing arithmetic operations is double parenthesis.

```
$ echo $(( A + B ))
$ echo $(( A-B ))
$ echo $((A / B))
$ echo $((A*B))
```

- You may also programming language C stype manipulations of variables

```
$ echo $(( ++A ))
$ echo $(( --A ))
$ echo $(( A++ ))
$ echo $(( A-- ))
```

double parentheses

```
$ echo $(( A + B ))
9
```

```
$ echo $(( ++A ))
7
```

```
$ echo $(( A-B ))
3
```

```
$ echo $(( --A ))
6
```

```
$ echo $((A/B))
2
```

```
$ echo $(( A++ ))
6
```

```
$ echo $(( A * B ))
18
```

```
$ echo $(( A-- ))
7
```

bc

- expr and "double parentheses" only return decimal output, they do not support floating values.

- For this we use another utility called `bc`, it referred to as `Basic Calculator`.

- It works in an interactive mode and also you can input to another command as well

```
$ A=10
$ B=3
$ expr $A / $B
$ echo $((A/B))
$ echo $A / $B |bc -l
```

bc

```
$ A=10
$ B=3
```

```
$ expr $A / $B
3
```

```
$ echo $((A/B))
3
```

```
$ echo $A / $B | bc -l
3.333333
```