



Sagar Institute of Research & Technology, Bhopal
Department of Information Technology

Experiment No. 3

Aim: Study & use of commands for performing arithmetic operations with Unix/Linux

Solution: The following arithmetic operators are supported by Bourne Shell.

Assume variable **a** holds 10 and variable **b** holds 20 then –

Operator	Description	Example
+ (Addition)	Adds values on either side of the operator	`expr \$a + \$b` will give 30
- (Subtraction)	Subtracts right hand operand from left hand operand	`expr \$a - \$b` will give -10
* (Multiplication)	Multiplies values on either side of the operator	`expr \$a * \$b` will give 200
/ (Division)	Divides left hand operand by right hand operand	`expr \$b / \$a` will give 2
% (Modulus)	Divides left hand operand by right hand operand and returns remainder	`expr \$b % \$a` will give 0
= (Assignment)	Assigns right operand in left operand	<code>a = \$b</code> would assign value of b into a
== (Equality)	Compares two numbers, if both are same then returns true.	<code>[\$a == \$b]</code> would return false.
!= (Not Equality)	Compares two numbers, if both are different then returns true.	<code>[\$a != \$b]</code> would return true.



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It is very important to understand that all the conditional expressions should be inside square braces with spaces around them, for example [**\$a == \$b**] is correct whereas, [**\$a==\$b**] is incorrect.

All the arithmetical calculations are done using long integers.

Example

Here is an example which uses all the arithmetic operators –

```
#!/bin/sh
a=10
b=20
val=`expr $a + $b`
echo "a + b : $val"

val=`expr $a - $b`
echo "a - b : $val"

val=`expr $a \* $b`
echo "a * b : $val"

val=`expr $b / $a`
echo "b / a : $val"

val=`expr $b % $a`
echo "b % a : $val"

if [ $a == $b ]
then
    echo "a is equal to b"
fi

if [ $a != $b ]
then
    echo "a is not equal to b"
fi
```



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The above script will produce the following result –

a + b : 30
a - b : -10
a * b : 200
b / a : 2
b % a : 0
a is not equal to b