$Bash Arithmetic Operations:

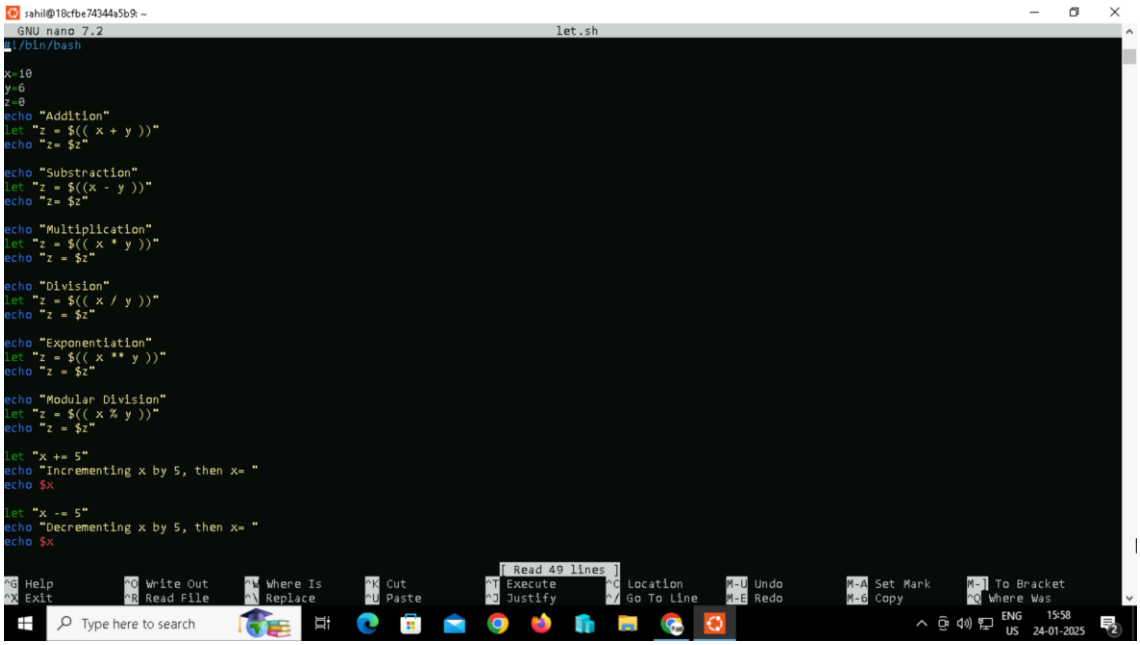
Arithmetic Operations Method 1

```
sahil@18cfbe74344a5b9:~$ sudo nano doublepara.sh
[sudo] password for sahil:
sahil@18cfbe74344a5b9:~$ cat doublepara.sh
#!/bin/bash
x=8
y=2
echo "x=8, y=2"
echo "Addition of x & y"
echo $(( $x + $y ))
echo "Subtraction of x & y"
echo $(( $x - $y ))
echo "Multiplication of x & y"
echo $(( $x * $y ))
echo "Division of x by y"
echo $(( $x / $y ))
echo "Exponentiation of x,y"
echo $(( $x ** $y ))
echo "Modular Division of x,y"
echo $(( $x % $y ))
echo "Incrementing x by 5, then x= "
(( x += 5 ))
echo $x
echo "Decrementing x by 5, then x= "
(( x -= 5 ))
echo $x
echo "Multiply of x by 5, then x="
(( x *= 5 ))
echo $x
echo "Dividing x by 5, x= "
(( x /= 5 ))
echo $x
echo "Remainder of Dividing x by 5, x="
(( x %= 5 ))
echo $x
```

```
sahil@18cfbe74344a5b9:~$ sudo chmod +x doublepara.sh
sahil@18cfbe74344a5b9:~$ ./doublepara.sh
x=8, y=2
Addition of x & y
10
Subtraction of x & y
6
Multiplication of x & y
16
Division of x by y
4
Exponentiation of x,y
64
Modular Division of x,y
0
Incrementing x by 5, then x=
13
Decrementing x by 5, then x=
8
Multiply of x by 5, then x=
40
Dividing x by 5, x=
8
Remainder of Dividing x by 5, x=
3
```

Arithmetic Operations Method 2

```
sahil@18cfbe74344a5b9:~$ sudo nano let.sh
```




```
sahil@18cfbe74344a5b9:~$ sudo chmod +x let.sh
sahil@18cfbe74344a5b9:~$ ./let.sh
Addition
z= 16
Substraction
z= 4
Multiplication
z = 60
Division
z = 1
Exponentiation
z = 1000000
Modular Division
z = 4
Incrementing x by 5, then x=
15
Decrementing x by 5, then x=
10
Multiply of x by 5, then x=
50
Dividing x by 5, x=
10
Remainder of Dividing x by 5, x=
0
```

Arithmetic Operations Method 3

```
sahil@18cfbe74344a5b9:~$ sudo nano expr.sh
sahil@18cfbe74344a5b9:~$ cat expr.sh
#!/bin/bash
# Basic arithmetic using expr

echo "a=10, b=3"
echo "c is the value of addition c=a+b"
a=10
b=3
echo "c= `expr $a + $b`"

sahil@18cfbe74344a5b9:~$ sudo chmod +x expr.sh
sahil@18cfbe74344a5b9:~$ ./expr.sh
a=10, b=3
c is the value of addition c=a+b
c= 13
```

$Bash if statement:

Bash if statement Example- 1

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex1
[sudo] password for sahil:
sahil@18cfbe74344a5b9:~$ cat bash_if_ex1
#!/bin/bash
read -p "Enter number: " number
if [ $number -gt 125 ]
then
  echo "Value is greater than 125"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex1
[sudo] password for sahil:
sahil@18cfbe74344a5b9:~$ ./bash_if_ex1
Enter number: 124
sahil@18cfbe74344a5b9:~$ ./bash_if_ex1
Enter number: 126
Value is greater than 125
```

Bash if statement Example- 2

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex2
sahil@18cfbe74344a5b9:~$ cat bash_if_ex2
#!/bin/bash
# if condition is true
if [ "myfile" == "myfile" ]; then
  echo "true condition"
fi

# if condition is false
if [ "myfile" == "yourfile" ]; then
  echo "false condition"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex2
sahil@18cfbe74344a5b9:~$ ./bash_if_ex2
true condition
```

Bash if statement Example- 3

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex3
sahil@18cfbe74344a5b9:~$ cat bash_if_ex3
#!/bin/bash

#if condition (greater than) is true
if [ 10 -gt 3 ];
then
  echo "10 is greater than 3."
fi

#if condition (greater than) is false
if [ 3 -gt 10 ];
then
  echo "3 is not greater than 10."
fi

#if condition (lesser than) is true
if [ 3 -lt 10 ];
then
  echo "3 is less than 10."
fi

#if condition (lesser than) is false
if [ 10 -lt 3 ];
then
  echo "10 is not less than 3."
fi

#if condition (equal to) is true
if [ 10 -eq 10 ];
then
  echo "10 is equal to 10."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex3
sahil@18cfbe74344a5b9:~$ ./bash_if_ex3
10 is greater than 3.
3 is less than 10.
10 is equal to 10.
```

Bash if statement Example- 4

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex4
sahil@18cfbe74344a5b9:~$ cat bash_if_ex4
#!/bin/bash

# TRUE && TRUE
if [ 8 -gt 6 ] && [ 10 -eq 10 ]; then
  echo "Conditions are true"
fi

# TRUE && FALSE
if [ "mylife" == "mylife" ] && [ 3 -gt 10 ]; then
  echo "Conditions are false"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex4
sahil@18cfbe74344a5b9:~$ ./bash_if_ex4
Conditions are true
```

Bash if statement Example- 5

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex5
sahil@18cfbe74344a5b9:~$ cat bash_if_ex5
#!/bin/bash

# TRUE || FALSE
if [ 8 -gt 7 ] || [ 10 -eq 3 ]; then
  echo "Condition is true."
fi

# FALSE || FALSE
if [ "mylife" == "yourlife" ] || [ 3 -gt 10 ]; then
  echo "Condition is false."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex5
sahil@18cfbe74344a5b9:~$ ./bash_if_ex5
Condition is true.
```

Bash if statement Example- 6

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex6
sahil@18cfbe74344a5b9:~$ cat bash_if_ex6
#!/bin/bash

# TRUE && FALSE || FALSE || TRUE
if [[ 10 -eq 10 && 5 -gt 4 || 3 -eq 4 || 3 -lt 6 ]]; then
  echo "Condition is true."
fi

# TRUE && FALSE || FALSE
if [[ 8 -eq 8 && 8 -gt 10 || 9 -lt 5 ]]; then
  echo "Condition is false"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex6
sahil@18cfbe74344a5b9:~$ ./bash_if_ex6
Condition is true.
```

Bash if statement Example- 7

```
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex7
sahil@18cfbe74344a5b9:~$ sudo nano bash_if_ex7
sahil@18cfbe74344a5b9:~$ cat bash_if_ex7
#!/bin/bash
# Nested if statement
echo "Enter a number"
read a

if [ $a -gt 50 ]; then
  echo "Number is greater than 50."

  if (( $a % 2 == 0 )); then
    echo "and it is an even number."
  fi
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x bash_if_ex7
sahil@18cfbe74344a5b9:~$ ./bash_if_ex7
Enter a number
68
Number is greater than 50.
and it is an even number.
```

$Bash if else statement:

Bash if else statement Example- 1

```
sahil@18cfbe74344a5b9:~$ sudo nano if_else_ex1
[sudo] password for sahil:
sahil@18cfbe74344a5b9:~$ cat if_else_ex1
#!/bin/bash
# When the condition is true
if [ 10 -gt 3 ]; then
  echo "10 is greater than 3."
else
  echo "10 is not greater than 3."
fi

# When the condition is false
if [ 3 -gt 10 ]; then
  echo "3 is greater than 10."
else
  echo "3 is not greater than 10."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x if_else_ex1
sahil@18cfbe74344a5b9:~$ ./if_else_ex1
10 is greater than 3.
3 is not greater than 10.
```

Bash if else statement Example- 2

```
sahil@18cfbe74344a5b9:~$ sudo nano if_else_ex2
sahil@18cfbe74344a5b9:~$ cat if_else_ex2
#!/bin/bash
# When condition is true
# TRUE && FALSE || FALSE || TRUE
if [[ 10 -gt 9 && 10 == 9 || 2 -lt 1 || 25 -gt 20 ]]; then
  echo "Given condition is true."
else
  echo "Given condition is false."
fi

# When condition is false
# TRUE && FALSE || FALSE || FALSE
if [[ 10 -gt 9 && 10 == 8 || 3 -gt 4 || 8 -gt 8 ]]; then
  echo "Given condition is true."
else
  echo "Given condition is not true."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x if_else_ex2
sahil@18cfbe74344a5b9:~$ ./if_else_ex2
Given condition is true.
Given condition is not true.
```

Bash if else statement Example- 3

```
sahil@18cfbe74344a5b9:~$ sudo nano if_else_ex3
sahil@18cfbe74344a5b9:~$ cat if_else_ex3
#!/bin/bash
read -p "Enter a value: " value
if [ $value -gt 9 ]; then
  echo "The value you typed is greater than 9."
else
  echo "The value you typed is not greater than 9."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x if_else_ex3
sahil@18cfbe74344a5b9:~$ ./if_else_ex3
Enter a value: 6
The value you typed is not greater than 9.
```

Bash if else statement Example- 4

```
sahil@18cfbe74344a5b9:~$ sudo nano if_else_ex4
sahil@18cfbe74344a5b9:~$ cat if_else_ex4
#!/bin/bash
read -p "Enter a value: " value

if [ $value -gt 9 ]; then
  if [ $value -lt 11 ]; then
    echo "$value > 9, $value < 11"
  else
    echo "The value you typed is greater than 9."
  fi
else
  echo "The value you typed is not greater than 9."
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x if_else_ex4
sahil@18cfbe74344a5b9:~$ ./if_else_ex4
Enter a value: 10
10 > 9, 10 < 11
```

$Bash elif statement:

Bash elif statement Example- 1

```
sahil@18cfbe74344a5b9:~$ sudo nano elif_ex1
sahil@18cfbe74344a5b9:~$ cat elif_ex1
#!/bin/bash

read -p "Enter a number of quantity: " num

if [ $num -gt 100 ]; then
  echo "Eligible for 10% discount"
elif [ $num -lt 100 ]; then
  echo "Eligible for 5% discount"
else
  echo "Lucky Draw Winner"
  echo "Eligible to get the item for free"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x elif_ex1
sahil@18cfbe74344a5b9:~$ ./elif_ex1
Enter a number of quantity: 110
Eligible for 10% discount
```

Bash elif statement Example- 2

```
sahil@18cfbe74344a5b9:~$ sudo nano elif_ex2
sahil@18cfbe74344a5b9:~$ cat elif_ex2
#!/bin/bash

read -p "Enter a number of quantity: " num

if [ $num -gt 200 ]; then
  echo "Eligible for 20% discount"

elif [[ $num == 200 || $num == 100 ]]; then
  echo "Lucky Draw Winner"
  echo "Eligible to get the item for free"

elif [[ $num -gt 100 && $num -lt 200 ]]; then
  echo "Eligible for 10% discount"

elif [ $num -lt 100 ]; then
  echo "No discount"
fi

sahil@18cfbe74344a5b9:~$ sudo chmod +x elif_ex2
sahil@18cfbe74344a5b9:~$ ./elif_ex2
Enter a number of quantity: 150
Eligible for 10% discount
```