1.Write a shell script to find sum,product,quotient,difference & remainder of 2 numbers

PROGRAM

```
echo "enter a and b"
read a b
sum=`expr $a + $b`
diff=`expr $a - $b`
pro=`expr $a \* $b`
quo=`expr $a / $b`
mod=`expr $a % $b`
echo "sum="$sum
echo "diff="$diff
echo "pro="$pro
echo "quo="$quo
echo "mod="$mod
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash arithmetic.sh
enter a and b
15 6
sum=21
diff=9
pro=90
quo=2
mod=3
```

2.Write a shell script to swap 2 numbers with & without using a temporary variable.

PROGRAM

```
echo "enter a and b"
read a b
a=$((a+b))
b=$((a-b))
a=$((a-b))
echo $a $b
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash swap.sh
enter a and b
8 6
6 8
```

3.Write a shell script that accepts two integers as its arguments and computes the value of the first number raised to the power of the second number.

PROGRAM

```
echo "enter a and b"
read a b
c=$((a**b))
echo $c
```

OUTPUT
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash power.sh
enter a and b
6 3
216

4.Write a shell script to add two floating point numbers.

PROGRAM
```
echo "enter a and b"
read a b
echo "scale=3;$a+$b" | bc
```

OUTPUT
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash floatadd.sh
enter a and b
4.5 6.7
11.2

5.Assign the values 5,6,10,2 to the variables a,b,c &d. Write a shell script to evaluate the expression (a*b*c)/d

PROGRAM
```
a=5
b=6
c=10
d=2
echo $(((a*b*c)/d))
```

OUTPUT
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash expr.sh
150

6.Write a shell script to
a)Find the length of a word/sentence

PROGRAM
```
echo "enter a sentence"
read a
echo "length=${#a}"
```

OUTPUT
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash strings1.sh
enter a sentence
welcome
length=7

b)Concatenate 2 strings

PROGRAM

```
echo "enter string1"
read b
echo "enter string2"
read c
d=${b}${c}
echo "after concatenate=$d"
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash strings2.sh
enter string1
gokul
enter string2
raj
after concatenate=gokulraj
```

c)Find & replace string

PROGRAM

```
read -p "Enter the original string: " original
read -p "Enter the string to find: " to_find
read -p "Enter the string to replace with: " replace_with
mod=${original//$to_find/$replace_with}
echo "The modified string is: $mod"
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash strings3.sh
Enter the original string: hello welcome all
Enter the string to find: all
Enter the string to replace with: everyone
The modified string is: hello welcome everyone
```

7.Write a shell script to find simple interest.

PROGRAM

```
echo "enter amount"
read p
echo "enter rate of interest"
read r
echo "enter no of years"
read n
value=$(echo "($p*$n*$r)/100" | bc)
echo $value
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash interest.sh
enter amount
5600
enter rate of interest
```

4
enter no of years
5
1120

8.Write a shell script to find
a.Area & circumference of a circle

PROGRAM
```
echo "enter radius"
read r
area=$(echo "3.14*$r*$r" | bc)
perim=$(echo "2*3.14*$r" | bc)
echo "area of traingle:"$area
echo "perimeter of traingle:"$perim
```

OUTPUT
```
mits@mits-H610M-H-V2-DDR4:~/gokul$ bash circleq.sh
enter radius
5
area of traingle:78.50
perimeter of traingle:31.40
```

b.Area & perimeter of a rectangle

PROGRAM
```
echo "enter length of rectangle"
read l
echo "enter breadth of rectangle"
read b
area=$(echo "$l*$b" | bc)
perim=$(echo "2*($l+$b)" | bc)
echo "area of rectangle:"$area
echo "perimeter of rectangle:"$perim
```

OUTPUT
```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash rectangleq.sh
enter length of rectangle
6
enter breadth of rectangle
5
area of rectangle:30
perimeter of rectangle:22
```

c.Area & perimeter of a square

PROGRAM
```
echo "enter side of square"
read s
area=$(echo "$s*$s" | bc)
```

```
perim=$(echo "4*$s" | bc)
echo "area of traingle:"$area
echo "perimeter of traingle:"$perim
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash sqaureq.sh
enter side of square
5
area of traingle:25
perimeter of traingle:20
```

9.Write a shell script to find the largest of 2 numbers.

PROGRAM

```
echo "enter value 1"
read x
echo "enter value 2"
read y
if [ $x -gt $y ]
then
echo $x "is greater"
elif [ $y -gt $x ]
then
echo $y "is greater"
else
echo "both equal"
fi
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash large2.sh
enter value 1
12
enter value 2
5
12 is greater
```

10.Write a shell script that computes the gross salary of a employee according to the following rules :
i) if basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.
ii) If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic.

PROGRAM

```
echo "enter employee name"
read n
echo "enter basic salary"
read bs
if [ $bs -lt 1500 ]
then
hra=$(echo "$bs/10" | bc)
```

```
da=$(echo "($bs*9)/10" | bc)
gs=$(echo "$bs+$hra+$da" | bc)
echo "name:"$n
echo "gross salary:"$gs
else
da=$(echo "($bs*98)/100" | bc)
gs=$(echo "$bs+500+$da" | bc)
echo "name:"$n
echo "gross salary:"$gs
fi
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash salary.sh
enter employee name
gokul
enter basic salary
1800
name:gokul
gross salary:4064
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash salary.sh
enter employee name
gokul
enter basic salary
1200
name:gokul
gross salary:2400
```

11.Write a shell script to find the largest of 3 numbers.

PROGRAM

```
echo "enter value 1"
read x
echo "enter value 2"
read y
echo "enter value 3"
read z
if [ $x -gt $y ]
then
if [ $x -gt $z ]
then
echo $x "is greater"
else
echo $z "is greater"
fi
else
if [ $y -gt $z ]
then
echo $y "is greater"
else
echo $z "is greater"
```

```
fi
fi
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash large3.sh
enter value 1
4
enter value 2
10
enter value 3
6
10 is greater
```

12.Write a shell script that receives any number of file names as arguments check if every arguments applied is a file or a directory and reports accordingly,whenever the argument is a file or directory.

PROGRAM

```
for f in "$@"
do
if [ -f $f ]
then
echo "$f is a file"
elif [ -d $f ]
then
echo "$f is a directory"
else
echo "enter valid file"
fi
done
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash checkfile.sh s2mca
s2mca is a directory
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash checkfile.sh abcd
enter valid file
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash checkfile.sh circleq.sh
circleq.sh is a file
```

13.Write a shell script to calculate the sum of digits of a number

PROGRAM

```
echo "enter number"
read n
s=0
while [ $n -gt 0 ]
do
k=$(( $n % 10 ))
n=$(( $n / 10 ))
s=$(( $s + $k ))
done
```

```
echo "sum of digit=$s"
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash dgsum.sh
enter number
562
sum of digit=13
```

14.Write a shell script to display the first 10 even numbers.

PROGRAM

```
a=2
while [ $a -le 20 ]
do
echo $a
a=`expr $a + 2`
done
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash evenno.sh
2
4
6
8
10
12
14
16
18
20
```

15.Write a shell script to display even numbers less than 10

PROGRAM

```
a=2
while [ $a -lt 10 ]
do
echo $a
a=`expr $a + 2`
done
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash evenless.sh
2
4
6
8
```

16.Write a shell script to convert the contents of a file into uppercase.

PROGRAM

```
echo "enter file name"
read b
if [ ! -f $b ]
then
echo "file doesnt exsist"
else
tr 'a-z' 'A-Z'<$b
fi
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ cat file3
hello welcome
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash toupper.sh
enter file name
file3
HELLO WELCOME
```

17.Write a shell script that delete all lines containing a specified word

PROGRAM

```
read -p "Enter file name:" fname
if [ -f $fname ]
then
read -p "Enter word to delete:" word
echo "File before removing $word:"
cat $fname
grep -v -i $word $fname > test
mv test $fname
echo "File after removing $word:"
cat $fname
else
echo "The file $fname is not existing"
fi
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash dltline.sh
Enter file name:file1
Enter word to delete:hi
File before removing hi:
hello
hi
welcome
abc
File after removing hi:
hello
welcome
abc
```

18.Write a shell script to find the factorial of given integer.

PROGRAM

```
echo "enter number"
read a
fact=1
for ((i=1;i<=a;i++))
do
fact=$((fact*i))
done
echo "factorial of $a is $fact"
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash fact.sh
enter number
5
factorial of 5 is 120
```

19.Write a shell script to find whether a given number is prime

PROGRAM

```
echo "Enter the number"
read num
for ((i=2;i<num;i++))
do
if [ $((num % i)) -eq 0 ]
then
echo "$num is not a prime number."
exit
fi
done
echo "$num is a prime."
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash primenum.sh
Enter the number
23
23 is a prime.
```

20.Write a shell script to print the pattern

1
2 2
3 3 3
4 4 4 4

PROGRAM

```
for ((i=1;i<=4;i++))
do
for ((j=1;j<=i;j++))
do
echo -n $i ""
```

```
done
echo ""
done
```

OUTPUT

```
mits@mits-H610M-H-V2-DDR4:~/gokul linux$ bash pattern.sh
1
2 2
3 3 3
4 4 4 4
```