Greatest of three numbers:

```
echo "Enter three numbers"
read a b c
if [ $a -ge $b ] && [ $a -ge $c ]; then
   echo "$a is greatest"
elif [ $b -ge $a ] && [ $b -ge $c ]; then
   echo "$b is greatest"
else
   echo "$c is greatest"
fi
```

—--

Factorial of N Numbers.

```
echo "Enter a number"
read num
fact=1
while [ $num -gt 1 ]; do
   fact=$((fact * num)) #fact = fact * num
   num=$((num - 1))
done
echo $fact
```

—--

Sum of N numbers.

```
echo "Enter a number:"
read n
sum=0
i=1
while [ $i -le $n ]; do
   sum=$((sum + i))
   i=$((i + 1))
done
echo "Sum of $n numbers is $sum"
```

—--

Odd or Even Number.

```
echo "Enter a number:"
read n
if [ $((n % 2)) -eq 0 ]; then
   echo "$n is even"
else
   echo "$n is odd"
fi
```

—--

Fibonacci Series

```
echo "Enter the Fibonacci number limit:"
read n
# First and second numbers of the Fibonacci series
a=0
b=1
echo "The Fibonacci series is:"
i=0
while [ $i -lt $n ]; do
   echo -n "$a "
   fn=$((a + b))
   a=$b
   b=$fn
   i=$((i + 1))
done
```

—--

Multiplication Table

```
echo "Enter a number:"
read n
i=1
while [ $i -le 10 ]; do
   echo "$n * $i = $((n * i))"
   i=$((i + 1))
done
```

—--

Swapping of Two Numbers.

```
echo "Enter two numbers:"
read a b
echo "Before swapping: a = $a, b = $b"
temp=$a
a=$b
b=$temp
echo "After swapping: a = $a, b = $b"
```

—--

File manipulation.

```
echo "Enter filename:"
read filename
if [ -e $filename ]; then
   echo "File exists."
   echo "File contents:"
   cat $filename
else
```

```
    echo "File does not exist. Creating file and adding sample text."
    echo "This is a sample file." > $filename
fi
```

—---

Palindrome or not

```
echo "Enter a number:"
read n

temp=$n
rev=0

while [ $n -gt 0 ]; do
    digit=$((n % 10))
    rev=$((rev * 10 + digit))
    n=$((n / 10))
done

if [ $temp -eq $rev ]; then
    echo "$temp is a palindrome"
else
    echo "$temp is not a palindrome"
fi
```

—---

Positive or negative number

```
echo "Enter a number:"
read n

if [ $n -gt 0 ]; then
    echo "$n is positive"
elif [ $n -lt 0 ]; then
    echo "$n is negative"
else
    echo "$n is zero"
fi
```

—---

Prime number or not

```
echo "Enter a number:"
read n

is_prime=1
i=2
```

```
while [ $i -le $(($n / 2)) ]; do
    if [ $(($n % $i)) -eq 0 ]; then
        is_prime=0
        break
    fi
    i=$((i + 1))
done

if [ $is_prime -eq 1 ] && [ $n -gt 1 ]; then
    echo "$n is a prime number"
else
    echo "$n is not a prime number"
fi
```

—---

Area of different shapes.

```
echo "Choose shape (circle, rectangle, triangle):"
read shape

case $shape in
    circle)
        echo "Enter radius:"
        read r
        area=$(echo "3.14159 * $r * $r" | bc)
        echo "Area of circle: $area"
        ;;

    rectangle)
        echo "Enter length and width:"
        read l w
        area=$(echo "$l * $w" | bc)
        echo "Area of rectangle: $area"
        ;;

    triangle)
        echo "Enter base and height:"
        read b h
        area=$(echo "0.5 * $b * $h" | bc)
        echo "Area of triangle: $area"
        ;;

    *)
        echo "Invalid shape"
        ;;
esac
```

—--

Armstrong or not

```
#!/bin/bash
echo "Enter a number:"
read c

x=$c
sum=0

while [ $x -gt 0 ]; do
   r=$((x % 10))
   n=$((r * r * r))
   sum=$((sum + n))
   x=$((x / 10))
done

if [ $sum -eq $c ]; then
   echo "It is an Armstrong Number."
else
   echo "It is not an Armstrong Number."
fi
```

—--

Arithmetic Function

```
echo "Enter first number:"
read a
echo "Enter second number:"
read b

echo "Select operation:"
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"
read choice

case $choice in
    1)
        result=$((a + b))
        echo "Result: $a + $b = $result"
        ;;
    2)
        result=$((a - b))
        echo "Result: $a - $b = $result"
        ;;
    3)
        result=$((a * b))
        echo "Result: $a * $b = $result"
        ;;
    4)
        if [ $b -ne 0 ]; then
            result=$((a / b))
            echo "Result: $a / $b = $result"
        else
            echo "Error: Division by zero is not allowed."
        fi
        ;;
    *)
        echo "Invalid choice"
        ;;
esac
```