Pascal's Triangle

```
n=5;
for i=n:-1:1
      for j=1:i-1
           fprintf(" ");
      end
      for k=1:(n-i+1)
           fprintf("%d ",k);
      end
      for m=(k-1):-1:1
           fprintf("%d ",m);
      end
      fprintf("\n");
end
```

Prime Number

```
function[a]=primenumber(n)
      count=0;
      for i=2:(n/2)
           if rem(n,i)==0
                count=count+1;
           end
      end
      if count==0
           a=n;
      else
           a=0;
      end
end
```

Quadratic Equation Roots

```matlab
function [root1,root2]=quadeqroots(a,b,c)
    global d;
    function discriminant
        d=(b^2)-(4*a*c);
    end
    discriminant
    %disp(d)
    if(d==0)
        fprintf("Roots are real and Equal\n");
        root1=-b/(2*a);
        root2=-b/(2*a);
    elseif(d>0)
        root1=(-b+sqrt(d))/(2*a);
        root2=-((-b+sqrt(d))/(2*a));
        fprintf("Roots are real and different");
    else
        realpart=-b/(2*a);
        imagPart=sqrt(d)/(2*a);
        fprintf("Roots are complex and different");
    end
end
```

Sum of Squares

```matlab
function result=sumofsquares(n)
    if (n==0)
        result=0;
    else
        result=n*n+sumofsquares(n-1);
    end
end
```

Vector Operations

```
x=[1,2,3,5];
a=x+5
a(1:2:4)
for i=1:2:4
        a(i)=a(i)+3;
end
squareroot=sqrt(a);
square=power(a,2);
disp(a);
disp(squareroot);
disp(square);
```

Sum of Series(Sum of Squares by calling two functions)

```
function[a]=S1(i)
a=i*i;
end


function[result]=Series(n)
        sum=0;
        for i=1:n
                a=S1(i);
                sum=sum+a;
        End
        result=sum;
End
```

Slicing Examples

```
x=32:2:76
y=75:-1:32
a=1:1:10
b=1:10
c=10:-1:2
```

Sum of Prime Numbers

```
function[result]=sumofprimenumbers(n)
        sum=0;
        for i=1:n
                a=primenumber(i);
                sum=sum+a;
        end
        result=sum;
end
```

Vector Operations example 2

```
x=[3 2 6 8]';
y=[4 1 3 5]';
y=x+y
for i=1:4
        x(i)=power(x(i),y(i));
end
for i=1:4
        fprintf("The value is "+int2str(x(i))+" ")
end
fprintf("\n")
for i=1:4
        z(i)=x(i)*y(i);
end
for i=1:4
        fprintf(int2str(z(i))+" ")
end
w=sum(z);
w
x'*y-w
```