```
clear;clc; format long
%Solution: 1
vec=[5 17 -3 8 0 -7 12 15 20 -6 - 4 -7 16];
n=length(vec);
for i=1:n;
    if vec(i)>0 (rem(vec(i),3)==0 | rem(vec(i),5)==0);
        vec(i)<0 & vec(i)*2;
    elseif vec(i)<0 & vec(i)>-5;
        vec(i)=vec(i)^3;
    end
end
vec
```

```
vec = 1×12
     5    17   -27     8     0    -7    12    15    20   -10    -7    16
```

```
%Question: 2
x=input('Enter value of x:');
a=1; n=1; b=a;
while n<=30 & a>=0.0001
    a=x^n/factorial(n);
    b=b+a;
    n=n+1;
end
if n>=30
    fprintf("There's more than 30 terma needed.\n")
else
    fprintf('exp(%i)=0.2f\n',x,b)
    fprintf('The value is %o.2f terms. \n',n)
end
```

```
exp(2)=0.2f
exp(7.389046e+00)=0.2f
The value is 14.2f terms.
```

```
%Question: 3
n=4; A=[0 1];
for i=1:n
    for j=1:n
        if i>1 & j==1
            A(i,j)=A(i-1,3)+A(i-1,4);
        elseif i>1 & j==2
            A(i,j)=A(i,1)+A(i-1,4);
        elseif j>2
            A(i,j)=A(i,j-1)+A(i,j-2);
        end
    end
end
A
```

```
A = 4×4
     0     1     1     2
```

```
     3     5     8    13
    21    34    55    89
   144   233   377   610
```

```
%Question: 4
m=input('entervalue of m:'); % m=5, m=10, m=20
t=0;
for n=0:m
    f=((-1/3)^n)/((2*n)+1);
    t=t+f;
end
t=sqrt(12)*t
```

```
t =
   3.141308785462883
```

```
m=pi
```

```
m =
   3.141592653589793
```

```
%Question: 5
m=input('Enter range:'); %m=100, m=100000, m=10000000
p=1;
for n=1:m
    f=(2*n)^2/((2*n)^2-1);
    p=p*f;
end
p=p*2
```

```
p =
   3.133787490628162
```

```
m=pi
```

```
m =
   3.141592653589793
```

```
%Question: 6
scrs=[73,91,37,81,63,66,50,90,75,43,88,80,79,69,26,82,89,99,71,59];
l=length(scrs);
for k=1:l
   [Max, position]=max(scrs);
   a(k)=max(scrs);
   scrs(position)=[];
end
m=mean(a(1:8));
m
```

```
m =
  87.500000000000000
```

```
%Question: 7
angle=input('enter angle in deg:'); %angle= 45, angle= 195
x=deg2rad(angle);
```

```
E=1; n=1; sn=x;
while E>1e-6
    an=(-1)^n/factorial(2*n+1)*x^(2*n+1);
    sn_1=sn;
    sn=an+sn_1;
    E=abs((sn-sn_1)/sn_1);
    n=n+1;
end
sn
```

```
sn =
   0.707106782936867
```

```
z=sind(angle)
```

```
z =
   0.707106781186548
```