```
# Assignment 12 Question 1
function[r, angleTheta] = cart2polar(x,y)
% A transformation that converts Cartesian coordinates to Polar coordinates
r = sqrt(x.^2 + y.^2);
angleTheta = atan(y/x);
```

output

```
>> cart2polar(2, 2)
ans = 2.8284
>>
# Assignment 11 Question 2

% find the sum of integers from 1 to n cubed
function[sum] = sum_of_cubes(n)
sum = 0;
for i= 1:n
  sum = sum + i.^3;
end
```

output

```
>> sum_of_cubes(20)
ans = 44100
>>


# assignment 12 question 3
function[f] = fibseq(n)

func = 1:n;
for k = 3:n
  out = func(k - 1) + func(k - 2);
  func(k) = out;
```

```
end
f = func
```

output

```
>> fibseq(20)
f =

 Columns 1 through 17:

     1     2     3     5     8    13    21    34    55    89   144   233   377   610   987  1597  2584

 Columns 18 through 20:

  4181  6765  10946

ans =

 Columns 1 through 17:

     1     2     3     5     8    13    21    34    55    89   144   233   377   610   987  1597  2584

 Columns 18 through 20:

  4181  6765  10946

>>
```