question 1

```
n=input('enter a positive integer: \n')
```

```
n =
5
```

```
fprintf('the factorial of %d is %d',n,recfac(n)); % semi colons are not
needed
```

```
the factorial of 5 is 120
```

```
% whenever its an integer write %d or else u will get error
function f=recfac(n)
if n==1
   f=1;
else
f=n*recfac(n-1);
end
end
```

question 7

```
a = input('Enter the base (a): ');
n = input('Enter a positive integer exponent (n): ');
fprintf('%.5f\n', retpow(a, n));
```

```
0.00032
```

```
function f = retpow(a, n)
    if n == 0
       f = 1;
    elseif n > 0
       f = (1/a) * retpow(a,n - 1);
    else
        error('The exponent shud be a positive integer.');
    end
end
```

question 4

```
a = input('Enter base (a): ');
n = input('Enter exponent (n): ');
result = p(a, n);
fprintf('The result of %d^%d is %d\n', a, n, result);
```

```
The result of 5^5 is 3125
```

```
function f = p(a, n)
    if n == 0
        f = 1;
    else
        f = a * p(a, n - 1);
    end
end
```

question 5

```
n = input('Enter the position (n) of the Fibonacci number: ');
result = fibonacci(n);
fprintf('The %dth Fibonacci number is %d\n', n, result);
```

```
The 5th Fibonacci number is 3
```

```
function f = fibonacci(n)
    if n == 1
        f = 0;
    elseif n == 2
        f = 1;
    else
        f = fibonacci(n - 1) + fibonacci(n - 2);
    end
end
```

question 6

```
n = input('Enter the position (n) in the sequence: ')
```

```
n =
5
```

```
result = sequence(n);
fprintf('The %dth term of the sequence is %d\n', n, result);
```

```
The 5th term of the sequence is 1579
```

```
function f = sequence(n)
    if n == 0
        f = 6;
    else
        f = 3 * sequence(n - 1) + 1;
    end
end
```

question 2