

# Home Work 5

1.

```
#include <stdio.h>
```

```
int max(int x , int y){
```

```
    return x>y ? x : y;
```

```
}
```

```
int main( void )
```

```
{
```

```
    int x , y , z;
```

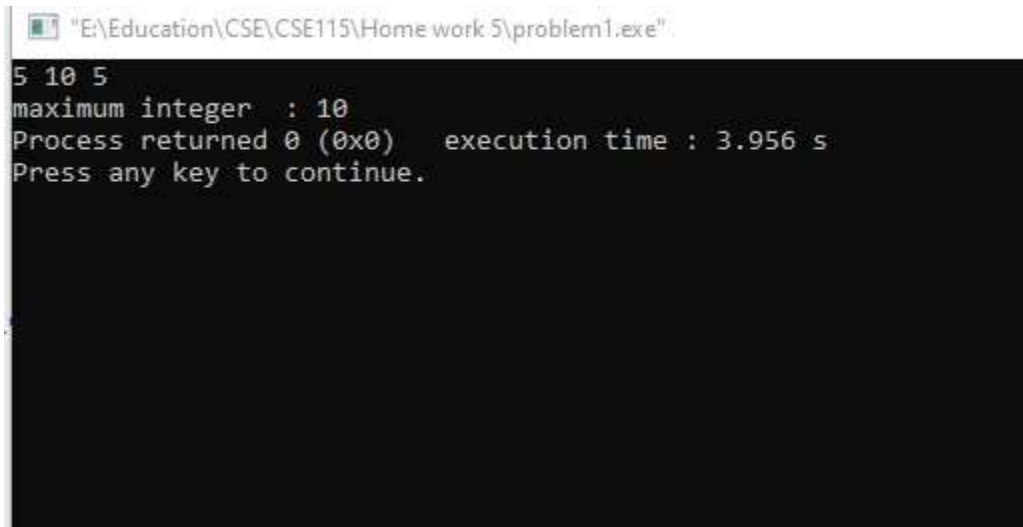
```
    scanf("%d%d%d",&x,&y,&z);
```

```
    printf("maximum integer : %d" , max(x,max(y,z)));
```

```
    return 0;
```

```
}
```

## Output



```
"E:\Education\CSE\CSE115\Home work 5\problem1.exe"
5 10 5
maximum integer : 10
Process returned 0 (0x0) execution time : 3.956 s
Press any key to continue.
```

2.

```
#include <stdio.h>
```

```
int factorial(int x) {
    if(x==0)
        return 1;
    return x*factorial(x-1);
}
```

```
int main( void )
{
    int x, n;
    scanf("%d%d", &x,&n);
```

```
double total =1;
for(int i=1;i<=n;i++) {

    double res = (double)x/(double)factorial(i);

    if(i&1)
        res=-res;

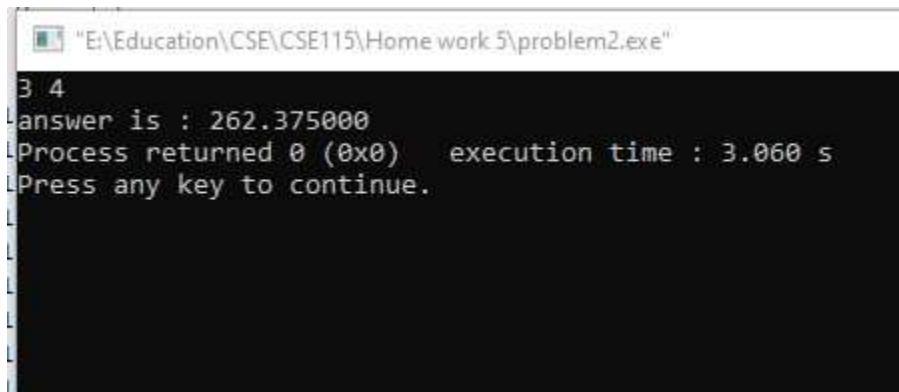
    total+=res;
    x*=x;

}

printf("answer is : %f", total);

    return 0;
}
```

## Output



```
"E:\Education\CSE\CSE115\Home work 5\problem2.exe"
3 4
answer is : 262.375000
Process returned 0 (0x0)   execution time : 3.060 s
Press any key to continue.
```

3.

```
#include <stdio.h>
```

```
const char* prime(int n){
```

```
    for(int i=2;i<=n/2;i++)
```

```
        if(n%i==0)
```

```
            return "Not Prime";
```

```
    return "Prime";
```

```
}
```

```
int main( void )
```

```
{
```

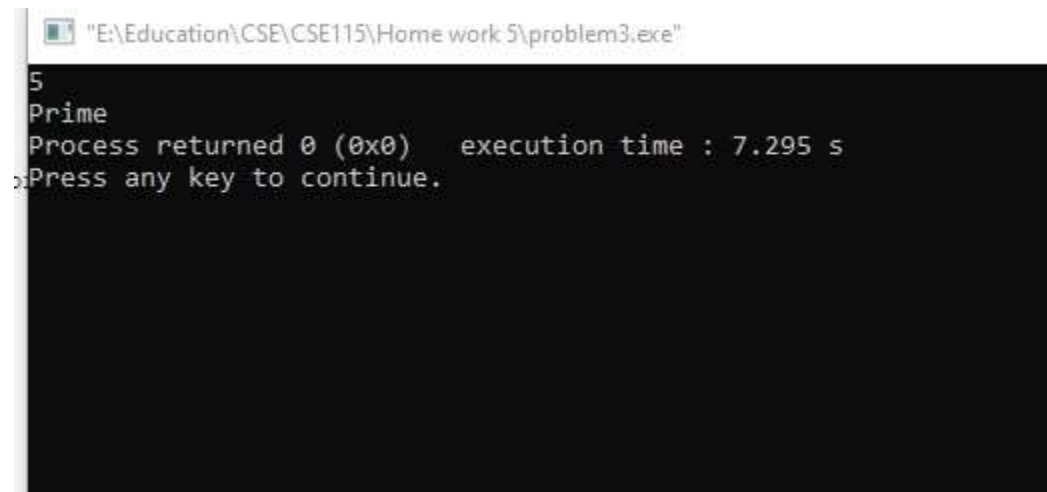
```
    int n;
```

```
    scanf("%d",&n);
```

```
    n<=0 ? printf("Wrong input") : printf("%s",prime(n)) ;
```

```
    return 0;  
}
```

Output:



```
"E:\Education\CSE\CSE115\Home work 5\problem3.exe"  
5  
Prime  
Process returned 0 (0x0)   execution time : 7.295 s  
Press any key to continue.
```

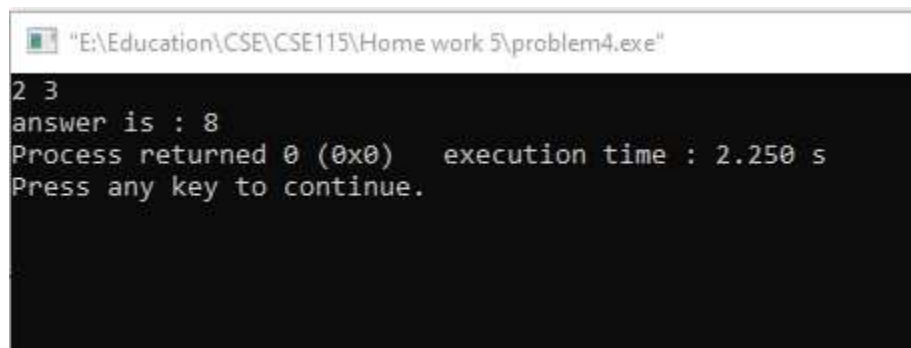
4.

```
#include <stdio.h>
```

```
int power_of_x(int a , int x){  
    if(x==0)  
        return 1;
```

```
    return a*(power_of_x(a , x-1));  
}  
  
int main( void )  
{  
    int a,x;  
  
    scanf("%d %d", &a,&x);  
  
    printf("answer is : %d" , power_of_x(a,x));  
  
    return 0;  
}
```

Output:



The screenshot shows a Windows command prompt window with the title bar "E:\Education\CSE\CSE115\Home work 5\problem4.exe". The command prompt displays the following text: "2 3", "answer is : 8", "Process returned 0 (0x0) execution time : 2.250 s", and "Press any key to continue.".

5.

a. The variables which are having scope/life throughout the program are called global variables. Global variable is defined outside the main function. So, this variable is visible to main function and all other sub functions.

b. Variables that are declared inside a function or block are called local variables. They can be used only by statements that are inside that function or block of code. Local variables are not known to functions outside their own. The following example shows how local variables are used. Here all the variables a, b, and c are local to the main() function.

6.

a)

```
int sum(int n)
{
    int i,s=0;
    for(i=0;i<=n;i++)
        s=s+i;
    return s;
}
```

b)

```
void listNumbersAsc(int start, int end)
```

```
{
    if(start <= end)
    {
        printf("%d ", start);
        listNumbersAsc(start+1, end);
    }
}
```

c)

```
void listNumbersDesc(int start, int end)
```

```
{
    if(start <= end)
    {
        printf("%d ", end);
        listNumbersDesc(start, end-1);
    }
}
```

d)

```
double harmonicSum(int n)
{
double i, sum = 0.0;
for (i = 1; i <= n; i++)
sum = sum + 1/i;
return sum;
}
```

e)

```
int sumOfDigits(int x)
{
int m,sum=0;
while(x>0)
{
m=x%10;
sum=sum+m;
x=x/10;
}
return sum;
}
```