Basics of Programming 1st midterm 'A'

Please full the empty places:

Name: Neptun code:

Signature: Points

During the examination you can only use a pen, anything written with a pencil is neglected!

Only source code written in C is accepted!

There are 5 tasks in the midterm, each worth 8 points, 16 points needed to pass.

Please write your name and neptun code on each paper!

	Task 1.	Task 2.	Task 3.	Task 4	Task 5	Sum
Handed	X	X	X	X	X	5
Points						

Task 1: Write a program, which sums up the numerical digits in a line of text!

Example:

IN: Alabama 12.

OUT: 3

```
#include <stdio.h>


int main(void){
char c;
int sum=0;
do{
   scanf("%c",&c);
   if(c>='0'&&c<='9')
                  sum+=c-'0';
}
while(c!='\n');
printf("%d",sum);
return 0;
}
```

Task 2: Write a program, which calculates the minimum and maximum of a user given integer series:

IN: 12 16 67 60 -1

OUT: MIN: 12, MAX:67

Your task is to write a program that reads the positive integer numbers terminated by any negative number (e.g.:-1). After the termination, the program prints out the minimum and maximum values.

```
#include <stdio.h>


int main(void){
int min, max,n;
scanf("%d",&n);
if(n>-1)
max=min=n;
else
return 1;
while(n>-1){
        if(n>max)
                max=n;
        if(n<min)
                min=n;
        scanf("%d",&n);
}
printf("Min: %d, Max: %d", min, max);
return 0;
}
```

Task 3: Solve the equation with iteration $\sqrt[2]{x-1}-2=0$

The program should work with a 0.0001 accuracy. The result is printed out with the same accuracy. You can use math.h!

```
#include <stdio.h>

#include <math.h>


int main(void){

double eps=0.0001;

double x=2; //it is larger then 2

for(;sqrt(x-1)-2<0; x+=eps); //loop does nothing

printf("%.4f",x);


return 0;

}
```

Task 4: Primes with 5 as the sum of digits

OUT:5, 41,113,131…

Write a program that prints out the primes with maximum 4 digits if the sum of digits is equal to 5.

```
#include <stdio.h>


int main(void){



for(int i=2; i<10000; i++){
        int isprime=1;
        for(int j=2;j<i/2;j++){
                if (i%j==0)
                        isprime=0;
                }
        if(isprime){
                int sum=0;
                int k=I;
                sum+=k/1000;
                k=k%1000;
                sum+=k/100;
                k=k%100;
                sum=k/10;
                k=k%10;
                if(sum==5)
                        printf("%d",i);
        }
}
return 0;
}
```

Task 5: Create a program that writes all unique elements of an array to the screen!

```
#include<stdio.h>


int main(){
int a[12]={1,2,5,6,7,23,5667,76,1,3,5,7};
for(int i=0; i<12;i++){
        int n=0;
        for(int j=0;j<12;j++){
                if(a[j]==a[i])
                        n++;
                }
        if(n==1)
        printf("%d, ",a[i]);
}
return 0;
}
```