



!!! ATENȚIE !!!



Aceste rezolvări NU au fost aprobate de MINISTERUL EDUCAȚIEI sau altă comisie recunoscută de Ministerul Educației. În consecință nimeni nu își asumă răspunderea pentru eventualele greșeli și / sau pierderi survenite în urma folosirii lor!

Folosește rezolvările pe riscul tău !!!

Dacă găsești greșeli sau ai nelămuriri în legătură cu o anumită rezolvare trimite-mi un e-mail pe adresa raducu@trei.ro și voi încerca să lămuresc / corectez problema.

Varianta 1:

1. d.

2. a. 963

b. 61, 65, 67

c. citește n $z \leftarrow 0$ $p \leftarrow 1$ dacă $n > 0$ atunci

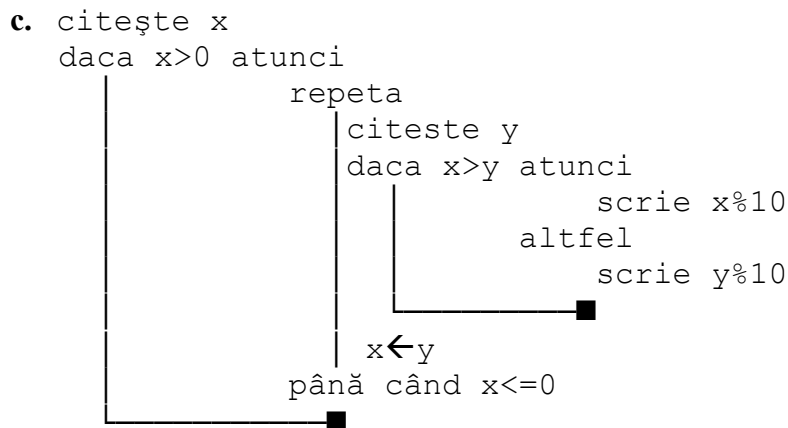
repetă

 $c \leftarrow n \% 10$ $n \leftarrow [n/10]$ dacă $c \% 3 = 0$ atunci $z \leftarrow z + p * (9 - c)$ $p \leftarrow p * 10$ până când $n \leq 0$ scrie z d. `#include <cstdlib>``#include <iostream>``using namespace std;``long n, z, p, c;``int main(int argc, char *argv[])``{``cout << "n= "; cin >> n;``z=0;``p=1;``while (n>0)``{``c=n % 10;``n/=10;``if (c % 3 == 0)``{``z+=p*(9-c);``p*=10;``}``}``cout << " z= " << z << endl;``system("PAUSE");``return 0;``}`**Varianta 2:**

1. a.

2. a. 2 2 1 1 7 7 5

b. 19 18 17 7 0



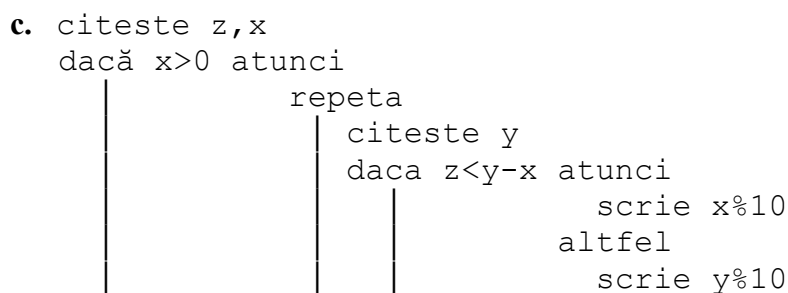
d. `#include <cstdlib>`
`#include <iostream>`
`using namespace std;`
`int x,y;`
`int main(int argc, char *argv[])`
`{`
 `cout<<"x= "; cin>>x;`
 `while (x>0)`
 `{`
 `cout<<"y= "; cin>>y;`
 `if (x>y)`
 `cout<<x%10<<" ";`
 `else cout<<y%10<<" ";`
 `x=y;`
 `}`
 `system("PAUSE");`
 `return EXIT_SUCCESS;`
`}`

Varianta 3:

1. b

2. a. 5 9 9 3 5 0

b. 1 7 9 3 1 0





d. `#include <cstdlib>`
`#include <iostream>`
`using namespace std;`
`int x,y,z;`
`int main(int argc, char *argv[])`
`{`
`cout<<"z= "; cin>>z;`
`cout<<"x= "; cin>>x;`
`while (x>0)`
`{`
`cout<<"y= "; cin>>y;`
`if (z<y-x)`
`cout<<x%10<<" ";`
`else cout<<y%10<<" ";`
`x=y;`
`}`
`system("PAUSE");`
`return EXIT_SUCCESS;`
`}`

Varianta 4:

1. d

2. a. 16 14 12 10 8 6

b. (0,-10), (1,-10), (1,-11), (0,-11), (-10,0), (-10,1), (-11,1), (-11,0)

c. citeste a,b

daca a<b atunci

```

    graph TD
      Start(( )) --> Assign[s ← a]
      Assign --> Assign[a ← b]
      Assign --> Assign[b ← s]
      Assign --> End(( ))
  
```

x ← a

cat timp x ≥ b executa

daca x%2=0 atunci

```

    graph TD
      Start(( )) --> Print[scrie x, " "]
      Print --> End(( ))
  
```

x ← x-1

```

    graph TD
      Start(( )) --> Assign[x ← x-1]
      Assign --> End(( ))
  
```

d. `#include <cstdlib>`
`#include <iostream>`

```

using namespace std;
int a,b,x,s;
int main(int argc, char *argv[])
{
    cout<<"a= "; cin>>a;
    cout<<"b= "; cin>>b;
    if (a<b)
        {
            s=a;  a=b;  b=s;
        }
    for(x=a; x>=b; x--)
        if(x % 2 ==0)
            cout<<x<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 5:

1. c

2. a. 1

b. 890

c. invers (x)

```

daca x!=0 atunci
    y ← y*10+x%10
    invers( [x/100] )

```

citește x,z

y ← 0

invers(x)

cat timp y*z>0 și y%10=z%10 executa

```

    y ← [y/10]
    z ← [z/10]

```

dacă y+z=0 atunci

scrie 1

altfel

scrie 0

d. #include <cstdlib>

#include <iostream>

using namespace std;

long x,y,z;

```

int main(int argc, char *argv[])
{
    cout<<"x= "; cin>>x;
    cout<<"z= "; cin>>z;
    y=0;
    {
        y=y * 10 + x % 10;
        x=x / 100;
    }while(x);
    while ( (y+z>0) && (y %10 == z % 10) )
    {
        y=y / 10;
        z=z / 10;
    }
    if (y + z ==0)
        cout<<1;
    else cout<<0;
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

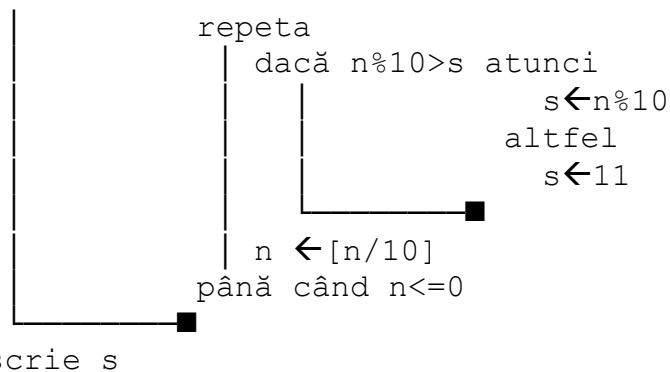
Varianta 6:

1. a

2. a. 9

b. 39 (orice nr. care nu are toate cifrele in ordine descresc)

c. citeste n

 $s \leftarrow -1$ dacă $n > 0$ atunci

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, s;

int main(int argc, char *argv[])

{

```

cout<<"n= "; cin>>n;
s=-1;
while (n>0)
    {
        if (n % 10 > s)
            s=n % 10;
        else s=11;
        n=n / 10;
    }
cout<<" S= "<<s<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 7:

1. d

2. a. 9432

b. 69645 și 55946

c. citeste n

nr ← 0

a ← 9

repetă

| m ← n

| cat timp m ≠ 0 și m % 10 ≠ a execută

| | m ← [m/10]

| dacă m ≠ 0 atunci

| | nr ← nr * 10 + m % 10

| a ← a - 1

până când a ≤ 0

scrie nr

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, nr, m, a;

int main(int argc, char *argv[])

{

cout<<"n= "; cin>>n;

nr=0;

for(a=9; a>=0; a--)

{

m=n;

while (m && (m % 10 != a))

m=m / 10;

```

        if (m)
            nr=nr*10+m % 10;
    }
    cout<<" nr= "<<nr<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 8:

1. a

2. a. 22

b. 7935 și orice k (orice număr cu toate cifrele impare)

c. citește n, k

nr ← 0

p ← 1

daca n ≠ 0 și k ≠ 0

atunci repeta

dacă n % 2 = 0 atunci

nr ← nr + n % 10 * p

p ← p * 10

altfel

k ← k - 1

n ← [n / 10]

până când n = 0 sau k = 0

scrie nr

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, k, nr, p;

int main(int argc, char *argv[])

{

cout<<"n= "; cin>>n;

cout<<"k= "; cin>>k;

nr=0;

p=1;

while (n && k)

{

if (n % 2 == 0)

{

nr+=n % 10 * p;

p*=10;

}

else k--;

n= n / 10;


```

    }
    cout<<" nr= "<<nr<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

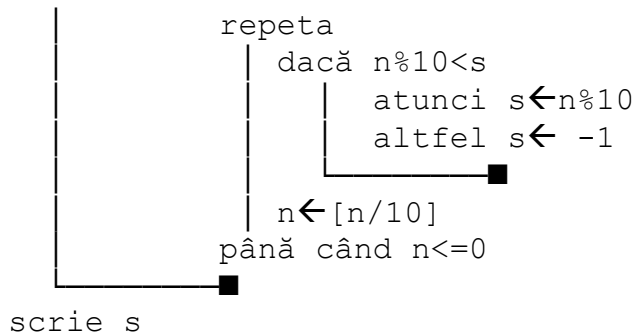
```

Varianta 9:

1. b

2. a. 1 b. 2317 (orice număr care nu are cifrele in ordine cresc.)

c. citește n

 $s \leftarrow 10$ daca $n > 0$ atunci

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, s;

int main(int argc, char *argv[])

{

cout<<"n= "; cin>>n;

s=10;

while (n>0)

{

if (n % 10 < s)

s= n % 10;

else s= -1;

n=n / 10;

}

cout<<" s= "<<s<<endl;

system("PAUSE");

return EXIT_SUCCESS;

}

Varianta 10:

1. a

2. a. 24

b. 23145

c. citește n , k $nr \leftarrow 0$ $p \leftarrow 1$ daca $n \neq 0$ și $k \neq 0$

atunci repeta

dacă $n \% 2 = 0$ atunci $nr \leftarrow nr + n / 10 \% 10 * p$ $p \leftarrow p * 10$

altfel

 $k \leftarrow k - 1$ $n \leftarrow [n / 10]$ până când $n = 0$ sau $k = 0$ scrie nr

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, k, nr, p;

int main(int argc, char *argv[])

{

cout<<"n= "; cin>>n;

cout<<"k= "; cin>>k;

nr=0;

p=1;

while (n && k)

{

if (n % 2 != 0)

{

nr+=n / 10 % 10 * p;

p*=10;

}

else k--;

n= n / 10;

}

cout<<" nr= "<<nr<<endl;

system("PAUSE");

return EXIT_SUCCESS;

}

Varianta 11:

1. c

2. a. 15

b. 54628 (orice nr. cu ultimele 4 cif pare)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

long n, k, c, p;

int main(int argc, char *argv[])
{
    cout<<"n= "; cin>>n;
    cout<<"k= "; cin>>k;
    p=1;
    while ( (n>0) && (k>0) )
    {
        c=n % 10;
        if (c % 2==1)
            p*=c;
        n=n / 10;
        k--;
    }
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```

d. citeste n,k
p←1
pentru i←k,1,-1 executa
|   dacă n>0
|   |   atunci c←n%10
|   |   |   dacă c%2=0
|   |   |   |   atunci p←p*c
|   |   |   |   └─┬─┘
|   |   |   └─┬─┘
|   |   └─┬─┘
|   └─┬─┘
|   └─┬─┘
└─┬─┘
    scrie p

```

Varianta 12:

1. d

2. a. 17396

b. 370 29 17 0

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

long x,y;

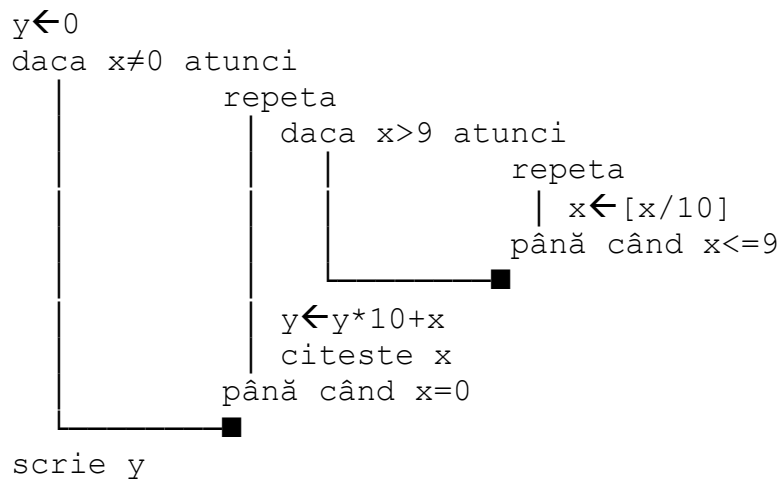
```

```

int main(int argc, char *argv[])
{
    cout<<"x= "; cin>>x;
    y=0;
    while (x)
    {
        while (x>9)
            x= x / 10;
        y=y*10+x;
        cout<<"x= "; cin>>x;
    }
    cout<<" y= "<<y<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x



Varianta 13:

1. b

2. a. 7

b. 61, 62

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int a, b, i, k, c, n;

int main(int argc, char *argv[])
{
    cout<<"a= "; cin>>a;
    cout<<"b= "; cin>>b;
    k=0;
    for(i=a; i<=b; i++)
    {

```

```

n=i; c=0;
while (n>0)
{
    if (n % 2 ==1)
        c++;
    n/=10;
}
if (c>0)
    k++;
}
cout<<" k= "<<k<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citeste a,b

```

k ← 0
i ← a
cât timp i ≤ b executa
    n ← i; c ← 0
    cât timp n > 0 executa
        dacă n % 2 = 1 atunci
            c ← c + 1
        n ← [n / 10]
    dacă c > 0
        atunci k ← k + 1
    i ← i + 1
scrie k

```

Varianta 14:

1. a

2. a. 27596 b. 371 35 211 0 (oricare 3 nr. cu cifra maxima subliniata)

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int x, y, c, n;
int main(int argc, char *argv[])
{
    cout<<"x= "; cin>>x;
    n=0;
}

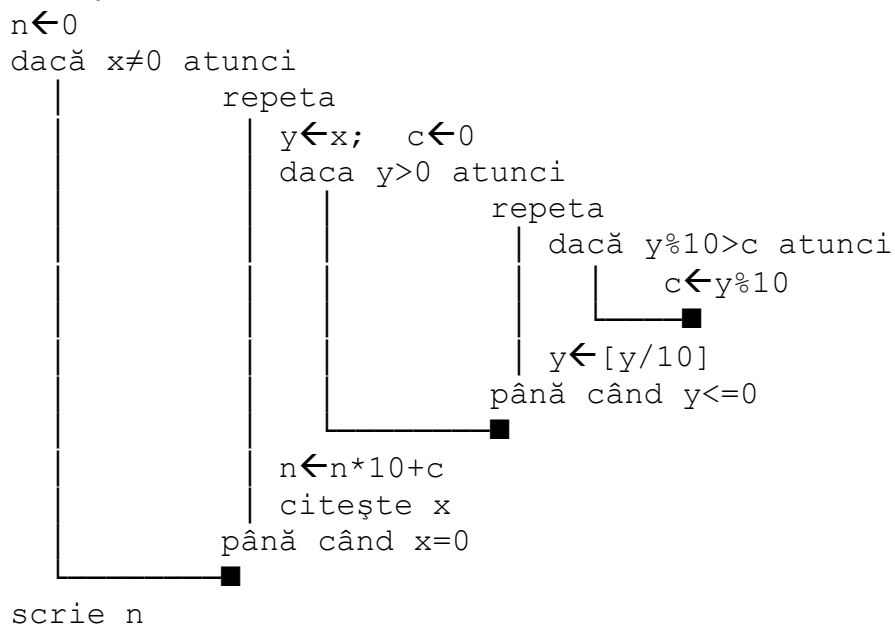
```

```

while (x)
{
    y=x; c=0;
    while (y>0)
    {
        if (y % 10 >c)
            c=y % 10;
        y= y / 10;
    }
    n=n*10+c;
    cout<<"x= "; cin>>x;
}
cout<<" n= "<<n<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citește x



Varianta 15:

1. d

2. a. 4

c. $n = 4$

d. $a \leftarrow a - (i-1) * (i-1)$

```

b. #include <cstdlib>
#include <iostream>

using namespace std;

int a, n, i;

int main(int argc, char *argv[])
{

```

```

cout<<"a= "; cin>>a;
cout<<"n= "; cin>>n;
for(i=1; i<=n; i++)
    if (i % 2 == 0)
        a-=i*i;
        else a+=i*i;
cout<<" a= "<<a<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 16:

1. a

2. a. ***#***

b. 12

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n, i, j, cont;
int main(int argc, char *argv[])
{
    cout<<"n= "; cin>>n;
    for(i=1; i<=n-1; i++)
    {
        if (i % 2==0)
            cout<<"#";
            for(j=i+1; j<=n; j++)
                cout<<"*";
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citeste n

```

i ← 1
cât timp i ≤ n-1 executa
|   dacă i%2=0
|   |   atunci scrie "#"
|   |   └─┬─┘
|   |   └─┬─┘
j ← i+1
cât timp j ≤ n executa
|   scrie "*"
|   └─┬─┘
|   └─┬─┘
j ← j+1
i ← i+1

```

**Varianta 17:**

1. a

2. a. ABABABAB

b. 6 perechi

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int x,y;

int main(int argc, char *argv[])
{
    cout<<"x= "; cin>>x;
    cout<<"y= "; cin>>y;
    if (x<y)
        {
            x=x-y;
            y=x+y;
            x=y-x;
        }
    while (x>=y)
        {
            cout<<"A";
            x-=y;
            cout<<"B";
        }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x,y

dacă $x < y$ atunci

```

| x ← x-y
| y ← x+y
| x ← y-x
└─┬─┘

```

dacă $x \geq y$ atunci

```

┌───┐
|   | repeta
|   |   | scrie "A"
|   |   | x ← x-y
|   |   | scrie "B"
|   |   └─┬─┘
|   └───┘ pînă cînd x < y
└───┘

```


Varianta 18:

1. a

2. a. ****

b. 0 și 1

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int x,y,aux;

int main(int argc, char *argv[])
{
    cout<<"x= "; cin>>x;
    cout<<"y= "; cin>>y;
    if (x>y)
        {
            aux=y;
            y=x;
            x=aux;
        }
    if (x % 2==0)
        x++;
    while (x<=y)
        {
            x+=2;
            cout<<"*";
        }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citeste x,y
 dacă $x > y$ atunci
 $y \leftrightarrow x$
 dacă $x \% 2 = 0$ atunci
 $x \leftarrow x + 1$
 dacă $x \leq y$ atunci
 repeta
 $x \leftarrow x + 2$
 scrie "*"
 până când $x > y$

Varianta 19:

1. b

2. a. 234

b. 312 și 335 (in intervalul format de cifrele subliniate sa existe numai 2 numere multiplu de 11)

```
c. #include <cstdlib>
#include <iostream>

using namespace std;

int a, b, i;

int main(int argc, char *argv[])
{
    cout<<"a= "; cin>>a;
    cout<<"b= "; cin>>b;
    a=a / 10 % 10 * 10 + a % 10;
    b=b / 10 % 10 * 10 + b % 10;
    for(i=a; i<=b; i++)
        if (i / 10 == i % 10)
            cout<<i % 10;
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

d. citeste a,b

$a \leftarrow [a/10] \cdot 10 + a \% 10$

$b \leftarrow [b/10] \cdot 10 + b \% 10$

$i \leftarrow a$

cât timp $i \leq b$ execută

 dacă $[i/10] = i \% 10$

 atunci scrie $i \% 10$

$i \leftarrow i + 1$

Varianta 20:

1. c

2. a. 9831

b. 3210

```
c. #include <cstdlib>
#include <iostream>

using namespace std;

int n, a, m, b;

int main(int argc, char *argv[])
{
    cout<<"n= "; cin>>n;
    a = n % 10;
```

```

m = a;
while (n>9)
{
    n=n / 10;
    b=n % 10;
    if (a>b)
    {
        m = m * 10 + b;
        a = b;
    }
}
cout<<" m= "<<m<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citește n

$a \leftarrow n \% 10$

$m \leftarrow a$

dacă $n > 9$ atunci

repetă

$n \leftarrow [n/10]$

$b \leftarrow n \% 10$

dacă $a > b$ atunci

$m \leftarrow m * 10 + b$

$a \leftarrow b$

până când $n \leq 9$

scrie m

Varianta 21:

1. c

2. a. 2, 8333

b. citește a, b, n

dacă $b = 0$

atunci scrie "GRESIT"

altfel

scrie $[a/b]$

dacă $n > 0$ și $a \% b \neq 0$ atunci

scrie ", "

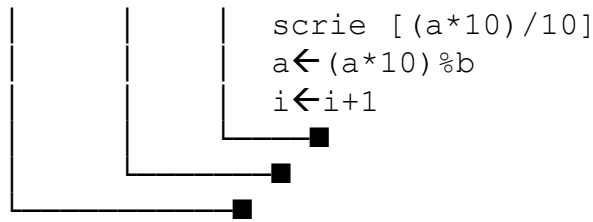
$a \leftarrow a \% b$; $i \leftarrow 0$

scrie $[(a * 10) / 10]$

$a \leftarrow (a * 10) \% b$

$i \leftarrow i + 1$

cât timp $i \neq n$ și $a \neq 0$ executa



```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int n, a, i, b;

int main(int argc, char *argv[])
{
    cout<<"a= "; cin>>a;
    cout<<"b= "; cin>>b;
    cout<<"n= "; cin>>n;
    if (b==0)
        cout<<" GRESIT ";
    else{
        cout<< a / b;
        if ( (n>0) && (a % b !=0) )
        {
            cout<<",";
            a=a % b; i=0;
            do{
                cout<<(a*10) / b;
                a=(a*10) % b;
                i++;
            }while ( (i!=n) && a );
        }
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. $a=29$, $b=4$ și $n=4$ (oricare 2 nr. care împărțite sa aibă numai $n-2$ zecimale)

Varianta 22:

1. b

2. a. 15

b. 10, 15, 25

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

```

```

int n, d, i;
int main(int argc, char *argv[])
{
    cout<<"n= "; cin>>n;
    if (n<0)
        n=-n;
    d=1;
    for( i=2; i<=n / 2; i++)
        if (n % i == 0)
            d=i;
    cout<<" d= "<<d<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. 25 (orice număr cu un singur divizor in intervalul $[2, n/2]$)

Varianta 23:

1. a

2. a. 4

b. 4, 9 și 14

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int a, b, p;

int main(int argc, char *argv[])
{
    cout<<"a= "; cin>>a;
    cout<<"b= "; cin>>b;
    p=0;
    while (a!=b)
    {
        p++;
        if (a<b)
            a=a+2;
        else b=b+3;
    }
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citeste a,b

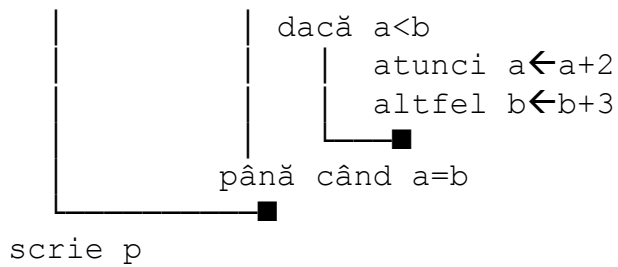
$p \leftarrow 0$

dacă $a \neq b$ atunci

```

|           repetă
|           |
|           |  $p \leftarrow p+1$ 

```

**Varianta 24:**

1. d

2. a. 75

b. 12 și 60

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int a, b, p, q;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    p=a; q=b;
    if ( (p==0) || (q==0) )
    {
        p*=q;
        q*=p;
    }
    while (p!=q)
    if (p<q)
        p+=a;
    else q+=b;
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
  
```

d. citește a, b

 $p \leftarrow a; q \leftarrow b$ dacă $p=0$ sau $q=0$ atunci

```

┌───┐
│   │ p ← p*q; q ← p*q
└───┘
  
```

dacă $p \neq q$ atunci

```

┌───┐
│   │   repeta
│   │   ┌───┐
│   │   │   dacă p<q
│   │   │   ┌───┐
│   │   │   │   atunci p ← p+a
│   │   │   │   altfel q ← q+b
│   │   │   └───┘
│   │   └───┘
└───┘
  
```

```

    ┌───────────┐ până când p=q
    │             │
    └───────────┘
scrie p

```

Varianta 25:

1. c

2. a. 12 și 18

d. $[(b-a+a\%c)/c]$

```

b. citește a,b,c
   dacă a>b atunci
     ┌── t←a; a←b; b←t
     │
     └──
   pentru i←a,b executa
     ┌───
     │   dacă c|i atunci
     │   ┌───
     │   │   scrie a
     │   └───
     └───

```

```

c. #include <cstdlib>
   #include <iostream>

   using namespace std;

   int a, b, c,t;

   int main(int argc, char *argv[])
   {
       cout<<" a= "; cin>>a;
       cout<<" b= "; cin>>b;
       cout<<" c= "; cin>>c;
       if (a>b)
           {
               t=a; a=b; b=t;
           }
       while (a<=b)
           {
               if (a % c ==0)
                   cout<<a<<" ";
               a++;
           }
       cout<<endl;
       system("PAUSE");
       return EXIT_SUCCESS;
   }

```

Varianta 26:

1. c

2. a. 1 2 3 4 5 6 7 8 9 0 1

b.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int n, i, c;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    c=0;
    for(i=1; i<n; i++)
    {
        c=(c+1) % 10;
        cout<<c<<" ";
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

c. citeste n
 $c \leftarrow 0$
 $i \leftarrow 1$
 cât timp $i \leq n$ executa
 | $c \leftarrow (c+1) \% 10$
 | scrie c
 | $i \leftarrow i+1$
 └─┬─

d. 10 valori (21, 22, 23, 24, 25, 26, 27, 28, 29, 30)

Varianta 27:

1. a

2. a. 2329

b.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int a, b, c, p, d;
int main(int argc, char *argv[])
{
```



```

cout<<" a= "; cin>>a;
cout<<" b= "; cin>>b;
c=0;
d=0;
p=1;
while (a+b+c>0)
{
    c=a % 10+b % 10 + c;
    d+=(c % 10) *p;
    p*=10;
    a/=10;
    b/=10;
    c/=10;
};
cout<<" d= "<<d<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

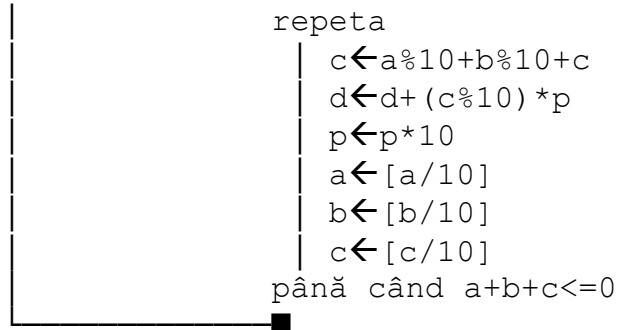
c. citește a,b

$c \leftarrow 0$

$d \leftarrow 0$

$p \leftarrow 1$

dacă $a+b+c > 0$ atunci



scrie d

d. citește a,b

$d \leftarrow a+b$

scrie d

Varianta 28:

1. b

2. a. 2

b. `#include <cstdlib>`
`#include <iostream>`

```

#include <math.h>
using namespace std;
double x, y;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    y=int(x);
    x-=y;
    while ( x!=round(x) )
        x*=10;
    if ( x==y )
        cout<<1;
    else cout<<2;
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

c. citește x

```

y ← [x]
x ← x - y
dacă x ≠ [x] atunci
    repeta
        | x ← x * 10
    până când x = [x];
dacă x = y atunci
    scrie 1
    altfel
    scrie 2

```

d. 12.12 (orice număr în care partea întreagă este egală cu partea fracțională)

Varianta 29:

1. a

2. a. 9

```

b. #include <cstdlib>
#include <iostream>
using namespace std;
int m, n;
int main(int argc, char *argv[])

```

```
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    while (n<=m)
    {
        n++;
        m--;
    }
    while (m<n)
    {
        m++;
        n--;
    }
    cout<<" n= "<<n<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

c. 9 și 11 (oricare 2 numere egal depărtate de 10)

d. citește n, m
scrie $[(n+m)/2]$

Varianta 30:

1. d

2. a. 4061

b.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int m, n, p, c;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    m=0;
    p=1;
    while (n>0)
    {
        c=n % 10;
        if (c>0)
            c=c-1;
        m+=c*p;
    }
}
```

```

        p*=10;
        n/=10;
    }
    cout<<" m= "<<m<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

c. citește n

```

m ← 0
p ← 1
dacă n > 0 atunci
    repeta
        c ← n % 10
        dacă c > 0 atunci
            c ← c - 1
        m ← m + c * p;
        p ← p * 10
        n ← [n / 10]
    până când n ≤ 0
scrie m

```

d. 3119 și 3009

Varianta 31:

1. b

2. a. b=1 k=6

b. 2 valori (3 și 5)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int a, k, b;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    k=0;
    b=(a+1)*(a+2) / 2;
    while (b>=a)
    {
        b-=a;
        k++;
    }
    cout<<" b= "<<b<<"      k= "<<k<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

}

d. citește a
 $b \leftarrow [(a+1) * (a+2) / 2]$
 $k \leftarrow [b/a]$
 $b \leftarrow b \% a$
 scrie b, k

Varianta 32:

1. d

2. a. 9 18 36 72 144 288

b. 1199

c.

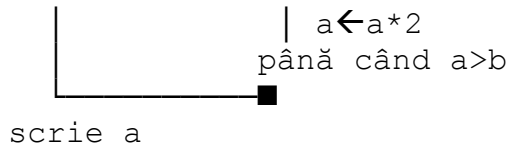
```
#include <cstdlib>
#include <iostream>

using namespace std;

int a, c, b;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    if (a>b)
    {
        c=b; b=a; a=c;
    }
    while (a<=b)
    {
        cout<<a<<" ";
        a*=2;
    }
    cout<<a<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

d. citește a, b
 dacă a>b atunci
 | c←b; b←a; a←c
 └─┬─┘
 └─┬─┘
 dacă a<=b atunci
 | repeta
 | | scrie a;

**Varianta 33:**

1. c

2. a. 135

b. (1,1), (2,4), (3,9), (4,16)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int x, y, p;

int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    p=0;
    do{
        if (y % 2 !=0)
            p+=x;
        y /= 2;
        x *= 2;
    }while (y>=1);
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x,y
 $p \leftarrow x \cdot y$
 scrie p

Varianta 34:

1. a

2. a. 38 47 56

b. 50 și 139 (oricareua numere terminate in 0 și 9 sau 1 și 9)

```

c. #include <cstdlib>
#include <iostream>

```

```

using namespace std;
int x, y, aux;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    x %= 10;
    y %= 10;
    if (y<x)
        {
            aux=y;
            y=x;
            x=aux;
        }
    while (x<=y)
        {
            cout<<x*10+y<<" ";
            x++;
            y--;
        }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x, y
 $x \leftarrow x \% 10$
 $y \leftarrow y \% 10$
 dacă $y < x$ atunci
 $aux \leftarrow y$
 $y \leftarrow x$
 $x \leftarrow aux$

pentru $i \leftarrow x, [(x+y)/2]$ executa
 dacă $x \leq y$ atunci
 scrie $x*10+y$
 $x \leftarrow x+1$
 $y \leftarrow y-1$

Varianta 35:

1. c

2. a. $s=4$

b. 64 (suma puterilor factorilor primi sa fie =6)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int x, s, f, p;

int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    s=0;
    f=2;
    while (x>1)
    {
        p=0;
        while (x % f == 0)
        {
            x /=f;
            p++;
        }
        if (p!=0)
            s+=p;
        f++;
    }
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. 7 11 13 17 19 23

Varianta 36:

1. b

2. a. 249

b. 4950

c. $s \leftarrow 0$
citește v
dacă $v \neq 0$ atunci

```

    |           repeta
    |           | a ← v%10
    |           | b ← [v/10]%10
    |           | s ← s+a*10+b
    |           | citește v
    |           | până când v=0
    |_____■

```

scrie s


```
d. #include <cstdlib>
#include <iostream>

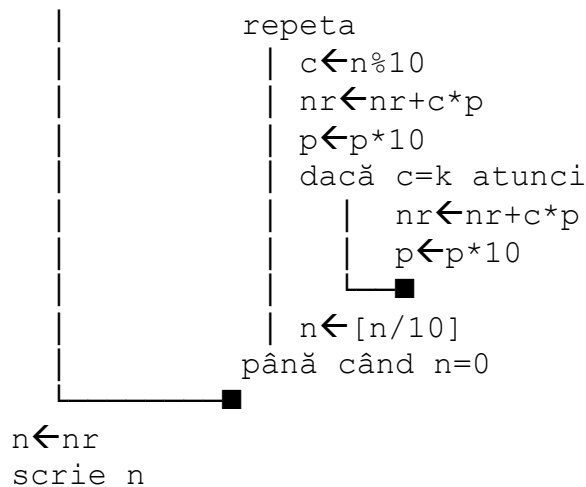
using namespace std;

int s, v, a, b;

int main(int argc, char *argv[])
{
    s=0;
    cout<<" v= "; cin>>v;
    while (v!=0)
    {
        a = v % 10;
        b = v / 10 % 10;
        s = s + a * 10 + b;
        cout<<" v= "; cin>>v;
    }
    cout<<" s= " << s << endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 37:

1. c

2. a. 122322 b. $n=123$ și $k=5$ (n – orice nr. iar k o cifra care nu este in n)c. citește n, k $nr \leftarrow 0$; $p \leftarrow 1$ dacă $n \neq 0$ atunci

d. #include <cstdlib>

```

#include <iostream>
using namespace std;
long n, k, c, p, nr;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" k= "; cin>>k;
    nr=0; p=1;
    while (n!=0)
    {
        c = n % 10;
        nr +=c*p;
        p *=10;
        if (c=k)
        {
            nr +=c*p;
            p *=10;
        }
        n /= 10;
    }
    n=nr;
    cout<<" n= "<<n<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 38:

1. d

2. a. 4

b. $n=52931, k=2$ (se afișează a $k+1$ cifra)

c. citește n, k
 pentru $i \leftarrow k, 1, -1$ executa

```

    | n ← [n/10]
    └─┬─┘
      z ← n%10
    scrie z

```

d. #include <cstdlib>
 #include <iostream>
 using namespace std;
 int n, k, i, z;
 int main(int argc, char *argv[])
 {

```

cout<<" n= "; cin>>n;
cout<<" k= "; cin>>k;
i=k;
while (i>0)
{
    n /= 10;
    i--;
}
z = n % 10;
cout<<" z= "<<z<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 39:

1. b

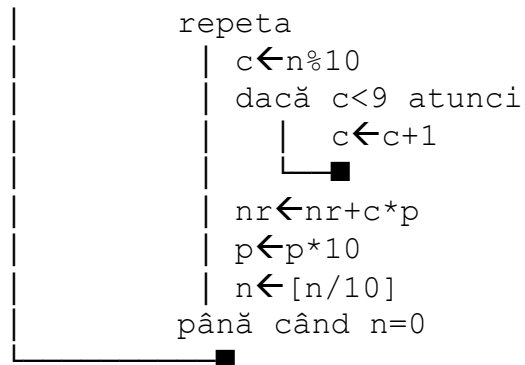
2. a. 23949

b. 999 (orice nr cu toate cifrele 9)

c. citește n

nr ← 0; p ← 1

dacă n ≠ 0 atunci



n ← nr

scrie n

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, nr, p, c;

int main(int argc, char *argv[])

{

cout<<" n= "; cin>>n;

nr=0; p=1;

while (n!=0)

{

```

        c = n % 10;
        if (c<9)
            c++;
        nr += c*p;
        p *=10;
        n /= 10;
    };
n=nr;
cout<<" n= "<<n<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 40:

1. c

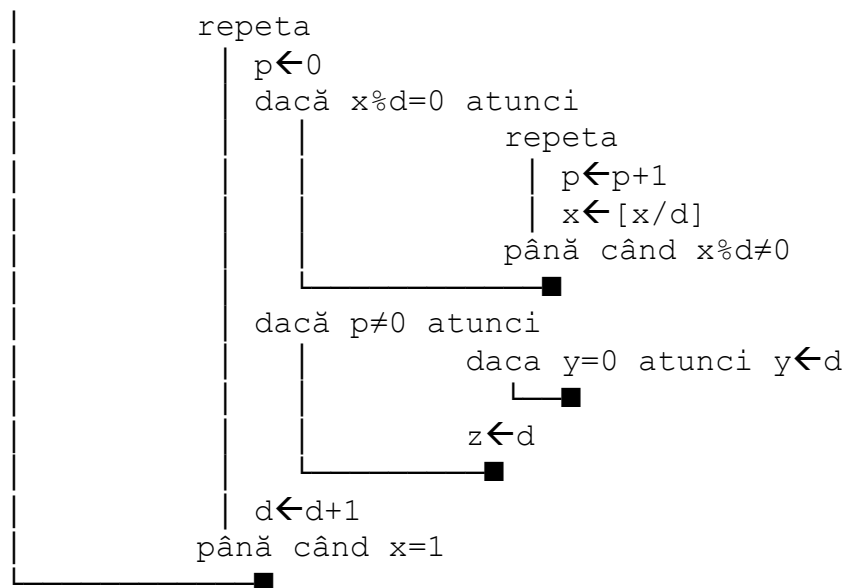
2. a. 2 și 7

b. 169 (oricie nr. prim la pătrat)

c. citește x

d ← 2; y ← 0; z ← 0

dacă x ≠ 1 atunci



scrie y

scrie z

d. #include <cstdlib>

#include <iostream>

using namespace std;

int x, d, y, z, p;

int main(int argc, char *argv[])

```

{
    cout<<" x= "; cin>>x;
    d=2; y=0; z=0;
    while (x!=1)
    {
        p=0;
        while (x % d==0)
        {
            p++;
            x /= d;
        }
        if (p!=0)
        {
            if (y==0)
                y=d;
            z=d;
        }
        d++;
    }
    cout<<" y= "<<y<<"      z= "<<z<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 41:

1. c

2. a. 100 50 25 5 1

b. 97

c. **diviz(x,d)**dacă $x \% d = 0$ atunci

```

    x ← [x/d]
    scrie x
    diviz(x,d)

```

```

citeste x
d ← 2
scrie x
cat timp x ≥ d executa
|   diviz(x,d)
|   d ← d+1

```

d. #include <cstdlib>
#include <iostream>

```

using namespace std;
int x, d;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    d=2;
    cout<<x<<" ";
    while (x>=d)
    {
        while (x % d == 0)
        {
            x /= d;
            cout<<x<<" ";
        }
        d++;
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

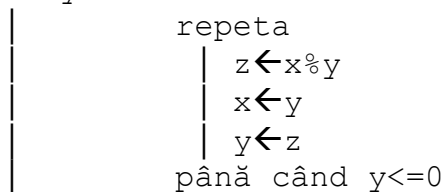
```

Varianta 42:

1. a

2. a. 5 (cmmdc)

b. 80

c. citește x, y dacă $y > 0$ atunciscrie x d. #include <cstdlib>
#include <iostream>

using namespace std;

int x, y, z ;

int main(int argc, char *argv[])

{

cout<<" x= "; cin>>x;

cout<<" y= "; cin>>y;

```

while (y>0)
{
    z=x % y;
    x=y;
    y=z;
}
cout<<" x= "<<x<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 43:

1. a

2. a. 5

b. 13 39 65 91

c. citește x,y

dacă $x*y \neq 0$ atunci

d. #include <cstdlib>

#include <iostream>

using namespace std;

int x, y;

int main(int argc, char *argv[])

{

cout<<" x= "; cin>>x;

cout<<" y= "; cin>>y;

while (x*y != 0)

if (x>y)

x %= y;

else y %= x;

cout<<" x+y= "<<x+y<<endl;

system("PAUSE");

return EXIT_SUCCESS;

}

Varianta 44:

1. a

2. a. 555 b. 338 (orice nr de forma $xy8$ cu x,y din intervalul $[1,9]$)

c. citește x
 $y \leftarrow 0$
dacă $x > y$ atunci
 | repetă
 | | $y \leftarrow y * 10 + 9 - x \% 10$
 | | până când $x \leq y$
 | └─┬─┘
 └─┬─┘
scrie y

d. #include <cstdlib>
#include <iostream>
using namespace std;
int x, y;
int main(int argc, char *argv[])
{
 cout<<" x= "; cin>>x;
 y=0;
 while (x>y)
 y = y*10+9-x % 10;
 cout<<" y= "<<y<<endl;
 system("PAUSE");
 return EXIT_SUCCESS;
}

Varianta 45:

1. a

2. a. 9

b. 38

c. citește x, y
 $z \leftarrow 1$
 $t \leftarrow 0$
dacă $x \geq z$ atunci
 | repeta
 | | dacă $x \% z = y$ atunci
 | | | $t \leftarrow z$
 | | └─┬─┘
 | └─┬─┘
 └─┬─┘


```

      | z ← z+1
      | până când x < z
      └───┬───┘
           └───┘
scrie t

```

```

d. #include <cstdlib>
#include <iostream>

using namespace std;

int x, y, z, t;

int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    z=1;
    t=0;
    while (x>=z)
    {
        if (x % z == y)
            t=z;
        z++;
    }
    cout<<" t= "<<t<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 46:

1. c

2. a. 1

b. 75

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

long n, s, nr;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    s=0;
    nr=0;
    while (n!=0)
    {
        if (n % 2 == 0)
            s=s*10+n % 10;

```

```

        n /= 10;
    }
    if (s!=0)
        nr=1;
    cout<<" nr= "<< nr <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește n

```

s ← 0
nr ← 0
dacă n ≠ 0 atunci
    repeta
        dacă n % 2 = 0 atunci
            s ← s * 10 + n % 10
        n ← [n / 10]
    până când n = 0
dacă s ≠ 0 atunci
    nr ← 1
scrie nr

```

Varianta 47:

1. d

2. a. 7

b. 70

c. citește n

```

max ← 0
n ← [n / 10]
dacă max < n % 10 atunci
    max ← n % 10
cat timp n ≠ 0 execută
    n ← [n / 10]
    dacă max < n % 10 atunci
        max ← n % 10
scrie max

```

d. #include <cstdlib>
#include <iostream>

```

using namespace std;

int n;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    int max=0;
    do{
        n /= 10;
        if (max<n % 10)
            max = n % 10;
    }while (n!=0);
    cout<<" max= "<<max<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 48:

1. a

2. a. 8 905 707 801 10001 105

b. 105 506 904 303 (oricare 4 numere cu cifra zecilor 0)

c. citeste n

```

i ← 1
repetă
| citeste x
| nr ← 0
| cat timp x > 0 executa
| | nr ← nr * 100 + x % 10
| | x ← [x / 100]
| | ──┬───┐
| | ──┬───┘
| | ──┬───┐
| | ──┬───┘
| cat timp nr > 0 executa
| | x ← x * 10 + nr % 10
| | nr ← [nr / 10]
| | ──┬───┐
| | ──┬───┘
| i ← i + 1
| scrie x
pana cand i > n

```

d. #include <cstdlib>

#include <iostream>

using namespace std;

long n, i, nr, x;

```

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for (i=1; i<=n; i++)
    {
        cout<<" x= "; cin>>x;
        nr=0;
        while (x>0)
        {
            nr=nr*100+x % 10;
            x /= 100;
        }
        while (nr>0)
        {
            x=x*10+nr % 10;
            nr /= 10;
        }
        cout<<" x= "<<x;
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 49:

1. b

2. a. 204

b. 92837 (in loc de 2 si 3 pot fi orice cifre)

c. citeste x

```

k ← 0
daca x ≠ 0 atunci
    repeta
        | k ← k*10+x%10
        | x ← [x/10]
        pana cand x=0
daca k ≠ 0 atunci
    repeta
        | x ← x*10+k%10
        | k ← [k/100]
        pana cand k=0
scrie x

```

d. #include <cstdlib>

```

#include <iostream>
using namespace std;
long x, k;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    k=0;
    while (x!=0)
    {
        k=k*10+x % 10;
        x /= 10;
    }
    while (k!=0)
    {
        x=x*10+k % 10;
        k /= 100;
    }
    cout<<" x= "<< x <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 50:

1. b

2. a. 2 b. 90 196 5293 95 (oricare 4 nr. Care au cifra zecilor 9)

c. citeste n

k ← 9

i ← 1

repetă

| citeste x

| c ← [x/10]%10

| dacă c < k atunci

| | k ← c

| └─┬─┘ ■

| i ← i+1

pană când i > n

scrie k

d. #include <cstdlib>

#include <iostream>

using namespace std;

int n, i, k, c, x;

```

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=9;
    for(i=1; i<=n; i++)
    {
        cout<<" x= "; cin>>x;
        c = x / 10 % 10;
        if (c<k)
            k=c;
    }
    cout<<" k= "<<k<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 51:

1. d

2. a. 4220

b. 2468 (orice nr. cu toate cifrele pare)

c. citește x

```

z ← 0
cat timp x ≠ 0 executa
| c ← x % 10
| daca c % 2 ≠ 0 atunci
| | z ← z * 10 + c - 1
| | altfel
| | z ← z * 10 + c
| x ← [x / 10]
scrie z

```

d. #include <cstdlib>

#include <iostream>

using namespace std;

int x, z, c;

int main(int argc, char *argv[])

{

cout<<" x= "; cin>>x;

z=0;

do{

c = x % 10;

if (c % 2 != 0)

```

        z = z*10+c-1;
        else z=z*10+c;
        x=x / 10;
    }while (x!=0);
    cout<<" z= "<<z<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 52:

1. a

2. a. 2

b. 13 48 625 19

c. citește n

d←0

c←0

i←1

repetă

| citește x

| cat timp x%2=0 executa

| | x←[x/2]; d←d+1

|

| cat timp x%5=0 executa

| | x←[x/5]; c←c+1

|

| i←i+1

pană când i>n

daca c<d

| atunci scrie c

| altfel d

|

d. #include <cstdlib>

#include <iostream>

using namespace std;

int n,d,c,i,x;

int main(int argc, char *argv[])

{

cout<<" n= "; cin>>n;

d=0;

c=0;

for(i=1; i<=n; i++)

```

{
    cout<<" x="; cin>>x;
    while (x % 2 == 0)
    {
        x /= 2;
        d++;
    }
    while (x % 5 == 0)
    {
        x /= 5;
        c++;
    }
}
if (c<d)
    cout<<c;
else cout<<d;
cout<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 53:

1. c

2. a. 13

b. 2462 (orice nr. cu toate cifrele pare)

c. citește x

z ← 0

p ← 1

cat timp x ≠ 0 executa

| c ← x % 10

| daca c % 2 ≠ 0

| | atunci z ← z + c * p

| | p ← p * 10

| x ← [x / 10]

scrie z

d. #include <cstdlib>

#include <iostream>

using namespace std;

int x, z, p, c;

int main(int argc, char *argv[])

{


```

cout<<" x= "; cin>>x;
z=0;
p=1;
do{
    c=x % 10;
    if (c % 2 !=0)
    {
        z=z+c*p;
        p *= 10;
    }
    x=x / 10;
}while (x!=0);
cout<<" z= "<<z<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 54:

1. d

2. a. 26

b. 1353 (orice nr cu toate cifrele impare)

c. citește n

```

s ← 0
cât timp n > 0 execută
| c ← n % 10
| dacă c % 2 = 0 atunci
| | p ← 1
| | i ← 2
| | repeta
| | | p ← p * i
| | | i ← i + 1
| | pana când i > c
| | s ← s + p
| ■
| n ← [n / 10]
| ■
scrie s

```

d. #include <cstdlib>
#include <iostream>

using namespace std;

int n, s, c, p, i;

int main(int argc, char *argv[])
{

```

cout<<" n= "; cin>>n;
s=0;
while (n>0)
{
    c = n % 10;
    if (c % 2 == 0)
    {
        p=1;
        for(i=2; i<=c; i++)
            p *= i;
        s += p;
    };
    n /= 10;
}
cout<<" s= "<<s<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 55:

1. a

2. a. $k=3$

b. 5 85 935 15 5 75

c. citește n

citește a

 $k \leftarrow 0$ $i \leftarrow 2$

repetă

| citește b

| dacă $a \% 10 = b \% 10$ atunci| | $k \leftarrow k+1$

| | ■

| $a \leftarrow b$ | $i \leftarrow i+1$ pană când $i > n$

scrie k

d. #include <cstdlib>

#include <iostream>

using namespace std;

int n, a, k, i, b;

int main(int argc, char *argv[])

{

cout<<" n= "; cin>>n;

```

cout<<" a= "; cin>>a;
k=0;
for (i=2; i<=n; i++)
{
    cout<<" b= "; cin>>b;
    if (a % 10 == b % 10)
        k=k+1;
    a=b;
}
cout<<" k= "<<k<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

Varianta 56:

1. b

2. a. 1020

b. 1817 (orice nr de forma $x8y7$)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

long n,r;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    r=0;
    do{
        r=(r*10+n % 10)*10;
        n /= 100;
    }while (n>=10);
    cout<<" r= "<<r<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```

d. citește n
r ← (n%10)*10
n ← [n/100]
cat timp n>=10 executa
| r ← (r*10+n%10)*10
| n ← [n/100]
└─┘

```

scrie r

Varianta 57:

1. d

2. a. 3

b. 63 70 77 91 98 (unul dintre ele)

```
c. #include <cstdlib>
#include <iostream>

using namespace std;

int n,q,i;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    q=1;
    i=1;
    while (i < n / i)
    {
        if (n % i == 0)
            q=q+i;
            i=i+3;
    }
    cout<<" q= "<<q<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

d. citește n

q ← 1

i ← 1

daca i < [n/i] atunci

|

repetă

| dacă n%i=0 atunci

| | q ← q+i

| | ■

| | i ← i+3

| pana cand i >= [n/i]

■
scrie q**Varianta 58:**

1. c

2. a. 1101

b. 50

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n, q;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    q=1;
    while (n>0)
    {
        if (n % 5 == 0)
            q *=10;
        else q=q*10+1;
        n /= 5;
    }
    cout<<" q= "<<q<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește n (număr natural)

```

q ← 1
daca n > 0 atunci
    repeta
        | dacă n % 5 = 0 atunci
        |   | q ← q * 10
        |   | altfel
        |   | q ← q * 10 + 1
        |   | ■
        | n ← [n / 5]
    pana cand n = 0
scrie q

```

Varianta 59:

1. b

2. a. 2

b. orice nr între 30 și 39

```

c. #include <cstdlib>
#include <iostream>
using namespace std;

```

```

int n, i;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    do{
        n = n % 100 / 10 + n / 10;
    }while (n>=10);
    cout<<" n= "<<n<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

- d. citește n
 $n \leftarrow [(n \% 100) / 10] + [n / 10]$
 cat timp $n \geq 0$ executa
 $n \leftarrow [(n \% 100) / 10] + [n / 10]$
 scrie n

Varianta 60:

1. a

2. a. 7 b. 24531 (orice nr care in fata lui 5 are numai cifre pare)

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n, c;
int main(int argc, char *argv[])
{
 cout<<" n= "; cin>>n;
 c=10;
 while (n % 2 == 1)
 {
 c=n % 10;
 n /= 10;
 }
 cout<<" c= "<<c<<endl;
 system("PAUSE");
 return EXIT_SUCCESS;
}

d. citește n (număr natural)
 $c \leftarrow 10$
 dacă $n \% 2 = 1$ atunci
 repetă
 | $c \leftarrow n \% 10$
 | $n \leftarrow [n/10]$
 pană când $n \% 2 \neq 1$
 scrie c

Varianta 61:

1. d

2. a. 1303

b. 36

```
c. #include <cstdlib>
#include <iostream>

using namespace std;

int a,b,n,x,y;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    n=0;
    while (a!=b)
    {
        x = a % 10;
        y = b % 10;
        if (x<y)
            n = n * 10 + x;
        else n = n * 10 + y;
        a /= 10;
        b /= 10;
    }
    cout<<" n= "<<n<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

d. citește a,b
 $n \leftarrow 0$
 dacă $a \neq b$ atunci
 repetă
 | $x \leftarrow a \% 10$
 | $y \leftarrow b \% 10$

```

    |   dacă x<y atunci
    |       n←n*10+x
    |       altfel
    |       n←n*10+y
    |       ■
    |   a←[a/10]
    |   b←[b/10]
    |   pana cand a=b
scrie n

```

Varianta 62:

1. b

2. a. 8162 2816 6281 1628

b. 1000 (orice $p \cdot 10^k$, $p \in [1,9]$; $k > 3$)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int x,aux,c,t;

int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    aux=x;
    do{
        c = x % 10;
        x /= 10;
        t = x;
        if (c == 0)
            aux=x;
        while (t!=0)
        {
            c *=10;
            t /= 10;
        }
        x += c;
        cout<<" "<<x;
    }while ( (x!=aux) || (c==0) );
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x
aux←x


```

repetă
  c ← x%10
  x ← [x/10]
  t ← x
  dacă c=0 atunci
    aux ← x
  dacă t≠0 atunci
    repeta
      c ← c*10
      t ← [t/10]
    pana cand t=0
  x ← c+x
  scrie x
până când x=aux și c≠0

```

Varianta 63:

1. a

2. a. 40 3

b. 5 9 13 (oricare 3 nr nediviz cu 2)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int i, n, d, b, v, x, aux, a;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" d= "; cin>>d;
    b=0;
    v=0;
    for(i=1; i<=n; i++)
    {
        cout<<" x= "; cin>>x;
        a=0;
        aux=x;
        while (x % d == 0)
        {
            a++;
            x /= d;
        }
        if (a>b)
        {
            b=a;
            v=aux;
        }
    }
}

```

```

    }
    cout<<v<<" "<<b<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește n , d

$b \leftarrow 0$

$v \leftarrow 0$

pentru $i \leftarrow 1, n$ execută

 citește x

$a \leftarrow 0$

$aux \leftarrow x$

 daca $x \% d = 0$ atunci

 repetă

 | $a \leftarrow a + 1$

 | $x \leftarrow \lfloor x / d \rfloor$

 pana cand $x \% d \neq 0$

 dacă $a > b$ atunci

$b \leftarrow a$

$v \leftarrow aux$

scrie v , " ", b

Varianta 64:

1. c

2. a. 2 3 4 4 5 6 5 6 7 8 10

b. 15

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int n, k, i, j;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=0;
    for(i=1; i<=n; i++)
        for(j=1; j<=i; j++)
        {
            cout<<i+j<<" ";
            k=k+1;
        }
}

```



```

d. citește n
m ← 0; v ← n
u ← n % 10
c ← n % 10
v ← v * 10 + c
dacă c = u atunci
    | m ← m + 1
    | ■
n ← [n / 10]
cat timp n ≠ 0 executa
    | c ← n % 10
    | v ← v * 10 + c
    | dacă c = u atunci
    |     | m ← m + 1
    |     | ■
    | n ← [n / 10]
    | ■
scrie v, m

```

Varianta 66:

1. b

2. a. NU b. 25 13 50 69 0 (cite nr / cu 5 atatea nr nediv cu 5)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int n, x;

int main(int argc, char *argv[])
{
    n = 0;
    do{
        cout << " x= "; cin >> x;
        if (x != 0)
            if (x % 5 == 0)
                n++;
            else n--;
    }while (x != 0);
    if (n == 0)
        cout << "DA";
    else cout << "NU";
    cout << endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```
d. n ← 0
   citește x
   cat timp x ≠ 0 executa
   |   dacă x%5=0 atunci
   |   |       n ← n+1
   |   |       altfel
   |   |       n ← n-1
   |   └─┬───┘
   |   citește x
   └─┬───┘
   dacă n=0 atunci
   |   scrie „DA”
   |   altfel
   |   scrie „NU”
   └─┬───┘
```

Varianta 67:**1. c****2. a. 264****b. 7986 (orice nr cu toate cifrele mari de 5)**

```
c. #include <cstdlib>
   #include <iostream>
   using namespace std;
   int n,z,c;
   int main(int argc, char *argv[])
   {
       cout<<" n= "; cin>>n;
       z=0;
       while (n>0)
       {
           c = n % 10;
           n /= 10;
           if (c<5)
               z=z*10+2*c;
       }
       cout<<" z= "<<z<<endl;
       system("PAUSE");
       return EXIT_SUCCESS;
   }
```

d. citește n (număr natural)

```

z ← 0
daca n > 0 atunci
|
|   repeta
|   |   c ← n % 10
|   |   n ← [n / 10]
|   |   dacă c < 5 atunci
|   |   |   z ← z * 10 + 2 * c
|   |   |   ■
|   |   pana cand n ≤ 0
|   ■
|
|   scrie z

```

Varianta 68:

1. a

2. a. 2

b. 5 15 20 25 30 (5 nr. Nediviz cu 7)

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int x,i,nr,n;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    nr=0;
    for (i=1; i<=5; i++)
    {
        cout<<" n= "; cin>>n;
        if (n % x == 0)
            nr++;
    }
    cout<<" nr= "<<nr<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x

```

nr ← 0
i ← 1
cat timp i ≤ 5 executa
|   citește n
|   dacă n % x = 0 atunci
|   |   nr ← nr + 1
|   |   ■
|   i ← i + 1

```

└─
 scrie nr

Varianta 69:

1. d

2. a. 4789

b. 200 si 200 sau 200 si 100 sau 200 si 0

```
c. #include <cstdlib>
#include <iostream>
using namespace std;
int x,y,t,u,z;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    t=0;
    u=1;
    do{
        if (x % 10 > y % 10)
            z = x % 10;
        else z = y % 10;
        t +=z*u;
        u *=10;
        x /= 10;
        y /= 10;
    }while ((x!=0) || (y!=0) );
    cout<<" t= "<<t<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

d. citește x,y

t ← 0

u ← 1

cat timp x≠0 sau y≠0 executa

| dacă x%10 > y%10 atunci

| | z ← x%10

| | altfel

| | z ← y%10

| └─

| t ← t+z*u

| u ← u*10

| x ← [x/10]

| y ← [y/10]

```

└─┐
  scrie t

```

Varianta 70:

1. a

2. a. 4 3

b. $n=5$ $x=2$ (oricare 2 nr astfel incat $n=2*x+1$)

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int x,y,n;
int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    n=0;
    while (x>=y)
    {
        x=x-y;
        n=n+1;
    }
    cout<<" n= "<<n<<"    x= "<<x<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește x, y

```

n ← 0
daca x ≥ y atunci
    repeta
        | x ← x - y
        | n ← n + 1
    pana cand x < y
scrie n, x

```

Varianta 71:

1. c

2. a. 84345

b. 42 35 296 1 (oricare 4 numere care au prima cifra 4 3 2 1 – in aceasta ordine)


```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int s,i,x,n,j;

int main(int argc, char *argv[])
{
    s=0;
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
    {
        cout<<" x= "; cin>>x;
        while (x>9)
            x /= 10;
        for(j=1; j<=i-1; j++)
            x *= 10;
        s +=x;
    }
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```

d. s ← 0
citește n (număr natural)
pentru i ← 1, n execută
    citește x
    dacă x > 9 atunci
        repeta
            x ← [x/10]
        până când x ≤ 9
    pentru j ← 1, i-1 execută
        x ← x*10
    s ← s + x
scrie s

```

Varianta 72:

1. d

```

2. a. *****
      *****
      ***

```



```

nr ← 0
┌ pentru i ← a, b execută
│   x ← i
│   ┌ dacă x ≠ 0 și x % p ≠ 0 atunci
│   │   ┌ repeta
│   │   │   x ← [x/10]
│   │   │   └ până când x = 0 sau x % p = 0
│   └─┘
│   ┌ dacă x ≠ 0 atunci
│   │   nr ← nr + 1
│   └─┘
└─┘
scrie nr

```

Varianta 74:

1. a

2. a. c=15 p=322

b. b=17335 (orice nr cu cifrele nesubliniate ca in exemplu)

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
long a,b,c,p;
int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    c=0;
    p=0;
    while (a+b>10)
    {
        if ( ( a % 10 == b % 10 ) && ( a % 10 % 2 == 1 )
)
            c=c*10 + b % 10;
        else p=p*10 + a % 10;
        a /= 10;
        b /= 10;
    }
    cout<<" c= "<<c<<"      p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește a, b (numere naturale)

```

c ← 0
p ← 0
cât timp a + b > 10 execută
  | dacă (a%10 = b%10) și (a%10%2=1)
  |   | atunci c ← c + 1
  |   | altfel p ← p*10 + a%10
  |   └─┬─┘
  |     └─┬─┘
  |       a ← [a/10]
  |       b ← [b/10]
  └─┬─┘
     └─┬─┘
scrie c, p

```

Varianta 75:

1. d

2. a. 62255661

b. 1253 3452 5602 7802

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

long a, k, x;

int main(int argc, char *argv[])
{
    a=0;
    k=0;
    do{
        cout<<" x= "; cin>>x;
        while (x>99)
            x /= 10;
        if (x>9)
            {
                a=a*100+x;
                k++;
            }
    }while (k!=4);
    cout<<" a= "<<a<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```

d. a←0
k←0
cat timp k<4 executa

```

```

citește x (număr natural)
cât timp x > 99 execută
  x ← [x/10]
dacă x > 9 atunci
  a ← a*100 + x
  k ← k+1
scrie a

```

Varianta 76:

1. c

2. a. 35

b. 6 (orice cifra pară)

```

c. #include <cstdlib>
#include <iostream>

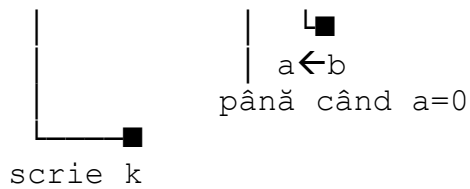
using namespace std;

int a,x,p,c;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    x=2;
    p=1;
    while (a>1)
    {
        c=0;
        while (a % x == 0)
        {
            c=x;
            a /= x;
        }
        if (c!=0)
            p *= c;
        x++;
    }
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește a (număr natural)
 $x \leftarrow 2$
 $p \leftarrow 1$

**Varianta 79:**

1. d

2. a. 12

b. 13 (orice valoare la care suma divizorilor primi este egală cu numărul initial)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int a,x,k,c;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    x=2;
    k=0;
    while (a>1)
    {
        c=0;
        while (a % x == 0)
        {
            c=x;
            a /= x;
        }
        if (c!=0)
            k += x;
        x++;
    }
    cout<<" k= "<<k<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește a

x ← 2

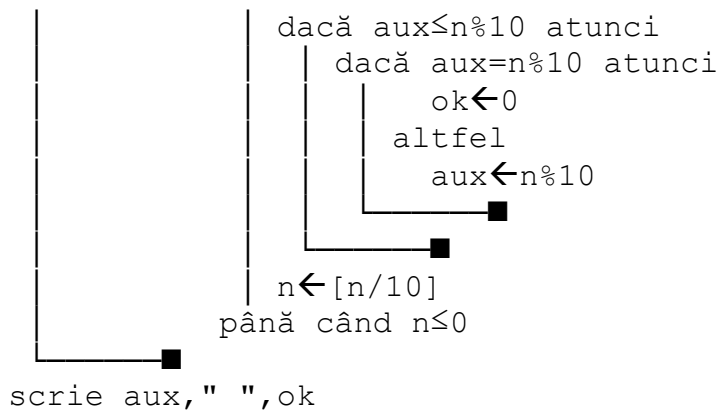
k ← 0

dacă a > 1 atunci repetă

|

c ← 0

| dacă x | a atunci repetă

**Varianta 82:**

1. d

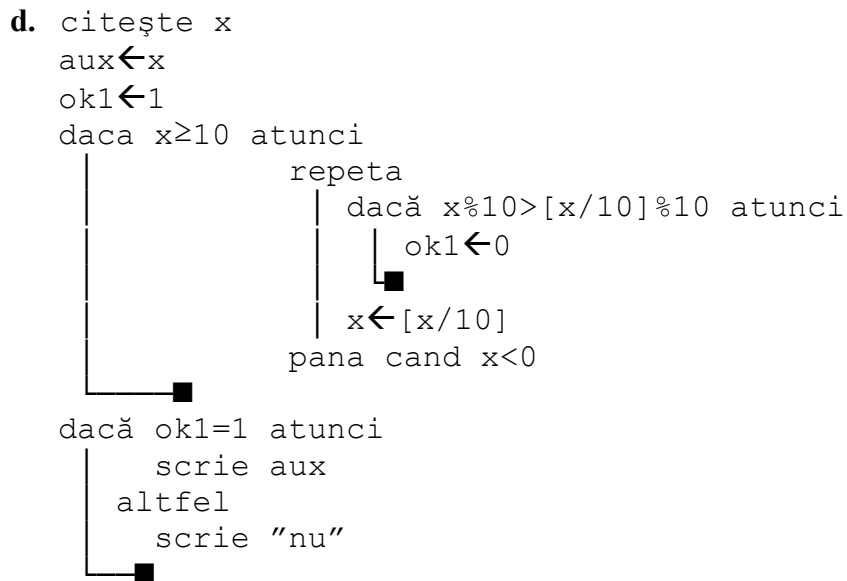
2. a. 25 15

b. 7

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
long m,n,i,aux,ok,x;
int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
    {
        cout<<" x= "; cin>>x;
        aux=x;
        ok=0;
        while (x>0)
        {
            if (x % 10 == m)
                ok=1;
            x /= 10;
        }
        if (ok == 1)
            cout<<" aux= "<<aux;
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
  
```

d. citește m

**Varianta 84:**

1. c

2. a. 6 NU

b. 698

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n,ok1,c;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    ok1=0;
    while (n>0)
    {
        c = n % 10;
        if ( (c>5) && (c % 2 == 0) )
            ok1=1;
        else ok1=0;
        if (ok1 == 1)
        {
            cout<<c<<" ";
            ok1=1;
        }
        n /= 10;
    }
    if (ok1 == 0)
        cout<<"NU";
    cout<<endl;
}

```

```

system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citește n

```

ok1 ← 0
daca n > 0 atunci
  repeta
    c ← n % 10
    dacă c > 5 și c % 2 = 0 atunci
      ok1 ← 1
    altfel
      ok1 ← 0
    dacă ok1 = 1 atunci
      scrie c, " "
      ok1 ← 1
    n ← [n / 10]
  pana cand n ≤ 0
daca ok1 = 0 atunci
  scrie "nu"

```

Varianta 85:

1. a

2. a. 5 9

b. 879

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n, ok1, ok, c;
int main(int argc, char *argv[])
{
    cout << " n= "; cin >> n;
    ok = 0;
    while (n > 0)
    {
        c = n % 10;
        if (c % 2 == 1)
            ok1 = 1;
        else ok1 = 0;
        if (ok1 == 1)

```

```

        {
            cout<<c<<" ";
            ok=1;
        }
        n /= 10;
    };
    if (ok == 0)
        cout<<"NU";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește n

```

ok ← 0
daca n > 0 atunci
    repeta
        c ← n % 10
        dacă c % 2 = 1 atunci
            ok1 ← 1
        altfel
            ok1 ← 0
        dacă ok1 = 1 atunci
            scrie c
            ok ← 1
        n ← [n / 10]
    pana cand n ≤ 0
dacă ok = 0 atunci
    scrie "nu"

```

Varianta 86:

1. c

2. a. 1 2 3 4 0 1 2

b. 25 (orice nr mai mare ca 20)

```

c. #include <cstdlib>
#include <iostream>

using namespace std;

int n, k, i;

int main(int argc, char *argv[])
{

```

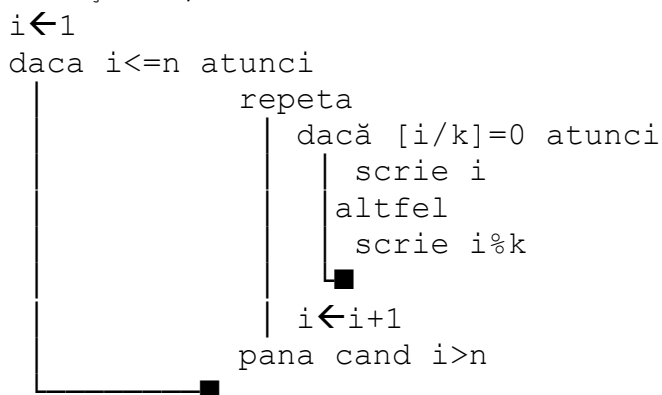


```

cout<<" n= "; cin>>n;
cout<<" k= "; cin>>k;
for(i=1; i<=n; i++)
    if (i / k == 0)
        cout<<i<<" ";
        else cout<< i % k <<" ";
cout<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citește n, k



Varianta 87:

1. d

2. a. 2

b. 98 91 84

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int a,b,c,x;
int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    cout<<" b= "; cin>>b;
    cout<<" c= "; cin>>c;
    while ( (a!=b) || (a!=c) )
    {
        x=a;
        if (x>b)
            x = b;
        if (x>c)

```

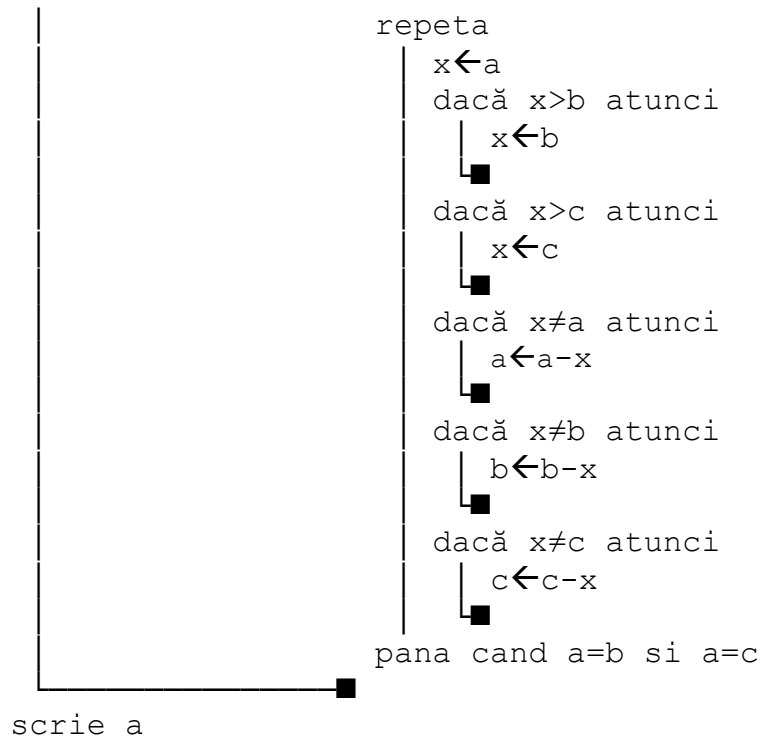
```

        x = c;
    if (x!=a)
        a -= x;
    if (x!=b)
        b -= x;
    if (x!=c)
        c -= x;
};
cout<<" a= "<<a<<endl;
system("PAUSE");
return EXIT_SUCCESS;
}

```

d. citește a,b,c

dacă $a \neq b$ sau $a \neq c$ atunci



Varianta 88:

1. b

2. a. 246531

b. 11262

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int a,p,b,c;

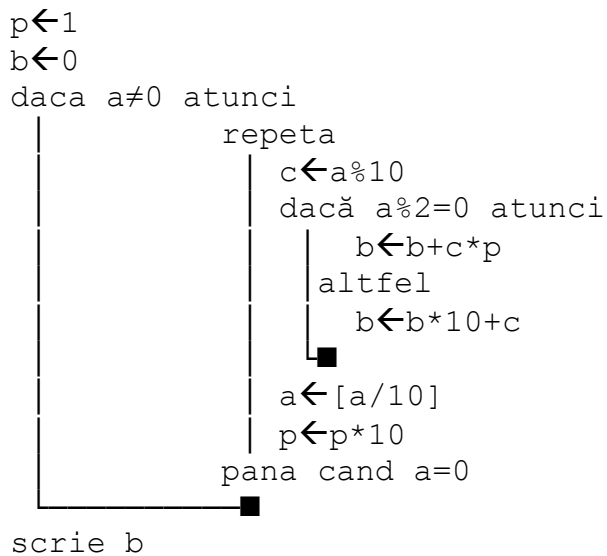
```

```

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    p=1;
    b=0;
    while (a!=0)
    {
        c=a % 10;
        if (a % 2 == 0)
            b += c*p;
        else b=b*10+c;
        a /= 10;
        p *= 10;
    }
    cout<<" b= "<<b<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește a



Varianta 89:

1. a

2. a. 1012141

b. 12468

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n,t,r;

```

```

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    t=n; r=0;
    while (t>0)
    {
        if (t % 10 % 2 == 1)
            r = r*10+1;
        else r=r*10+t % 10;
        t /= 10;
    }
    n=0;
    while (r>0)
    {
        n=n*10+r % 10;
        r /= 10;
    }
    cout<<" n= "<<n<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. citește n

```

t ← n; r ← 0
daca t > 0 atunci
    repeta
        dacă (t%10)%2=1 atunci
            r ← r*10+1
        altfel
            r ← r*10+t%10
        t ← [t/10]
    pana cand t ≤ 0
n ← 0
daca r > 0 atunci
    repeta
        n ← n*10+r%10
        r ← [r/10]
    pana cand r ≤ 0
scrie n

```

Varianta 90:

1. c

Varianta 91:

1. d

2. a. 7

b. citește z

 $z \leftarrow |z|$ $x \leftarrow 1$ $y \leftarrow x$ $x \leftarrow [(x+z/x)/2]$ cat timp $x \neq y$ executa| $y \leftarrow x$ | $x \leftarrow [(x+z/x)/2]$

scrie x

c. #include <cstdlib>

#include <iostream>

#include <math.h>

using namespace std;

int z,x,y;

int main(int argc, char *argv[])

{

cout<<" z= "; cin>>z;

z= abs(z);

x=1;

do{

y = x;

x = (x+z / x) / 2;

}while (x!=y);

cout<<" x= "<<x<<endl;

system("PAUSE");

return EXIT_SUCCESS;

}

d. o singura data

Varianta 92:

1. a

2. a. 9 9

b. 5 9 2 (oricare 3 numere din intervalul [1,10])

```

c. #include <cstdlib>
#include <iostream>
#include <math.h>

using namespace std;

int n,nr,y,i,x;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    nr=0;
    y=0;
    for(i=1; i<=n; i++)
    {
        do{
            cout<<" x= "; cin>>x;
            nr++;
        }while ( (x<1) || (x>10) );
        y += x;
    }
    cout<<y / n<<" " <<nr<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

```

d. citește n
nr←0
y←0
pentru i←1,n execută
    | citește x (număr real)
    | nr←nr+1
    | cat timp x<1 sau x>10 executa
    | | citește x (număr real)
    | | nr←nr+1
    | | ■
    | y←y+x
    | ■
scrie [y/n]
scrie nr

```

Varianta 93:

1. b

2. a. 26

b. #include <cstdlib>

```

#include <iostream>
using namespace std;
int n,m,s;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    s=0;
    while (n<m)
    {
        s += n;
        n += 3;
    }
    if (n=m)
        cout<<s+n;
    else cout<<0;
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

c. 7 valori (m= 0 2 3 5 6 8 9)

d.

$k \leftarrow [(m-n)/3]$

daca $(m-n)\%3 \neq 0$

└ atunci scrie 0

└ altfel scrie $n+n*[(m-n)/3]+[k*(k+1)/2]*3$

Varianta 94:

1. a

2. a. 621131

b. 0

c. citește n

n1 ← 0

n2 ← 0

k1 ← 0

p ← 1

cât timp n ≠ 0 execută

┌ dacă $(n\%10)\%2=0$ atunci

┌ ┌ n2 ← n2 * 10 + n%10

┌ └ altfel

┌ ┌ n1 ← n1 * 10 + n%10

```

    |   |   p ← p*10
    |   └─┬─
    |   n ← [n/10]
    └─┬─
      x ← n2*p + n1
      scrie x
  
```

```

d. #include <cstdlib>
   #include <iostream>

   using namespace std;

   long n,n1,n2,k1,p,x,i;

   int main(int argc, char *argv[])
   {
       cout<<" n= "; cin>>n;
       n1=0;
       n2=0;
       k1=0;
       while (n!=0)
           {
               if ( (n % 10) % 2 == 0 )
                   n2= n2*10+n % 10;
               else{
                   n1 = n1*10+n % 10;
                   k1++;
               }
               n /= 10;
           }
       p=1;
       for(i=1; i<=k1; i++)
           p *= 10;
       x = n2*p+n1;
       cout<<" x= "<<x<<endl;
       system("PAUSE");
       return EXIT_SUCCESS;
   }
  
```

Varianta 95:

1. d

2. a. 125 b. 98002, 89002, 80902, 80092, 80029, 80020

```

c. #include <cstdlib>
   #include <iostream>

   using namespace std;
  
```

```

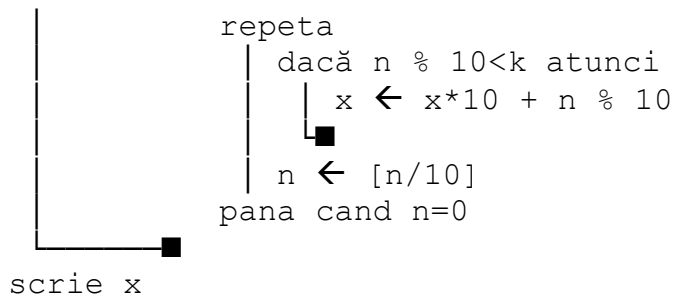
long x,n,k;
int main(int argc, char *argv[])
{
    x=0;
    cout<<" n= "; cin>>n;
    cout<<" k= "; cin>>k;
    while (n!=0)
    {
        if (n % 10 < k)
            x = x*10+n % 10;
        n /= 10;
    }
    cout<<" x= "<<x<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

d. $x \leftarrow 0$

citește n, k

dacă $n \neq 0$ atunci



Varianta 96:

1. c

2. a. (1, 2, 7; (1, 3, 6; (1, 4, 5; (2, 3, 5)

b. 30 (orice nr multiplu de 3)

```

c. #include <cstdlib>
#include <iostream>
using namespace std;
int n,i,j,k;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for (i=1; i<=n; i++)
        for (j=1; j<=n; j++)

```

```

    for (k=1; k<=n; k++)
        if ( (i<j) && (j<k) )
            if (i+j+k == n)
                cout<<i<<" "<<j<<" "<<k<<endl;;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

- d. citește n
 pentru $i \leftarrow 1, n$ execută
 | pentru $j \leftarrow 1, n$ execută
 | | $k \leftarrow n - (i + j)$
 | | dacă $i < j < k$ atunci
 | | | scrie i, " ", j, " ", k
 | | | salt la rând nou
 | | ■
 | ■
 ■

Varianta 97:

1. b

2. a. 3 10 24

- b. 27 44 123 (ultima cifra, de la primul nr, ultima cifra, de la alilea nr, *2 și ultima cifra, de la ultimul nr, *3 sa fie consecutive)

c. citește x
 $s \leftarrow x \% 10$
 scrie s
 citește x
 $s \leftarrow (x \% 10) * 2$
 scrie s
 citește x
 $s \leftarrow (x \% 10) * 3$
 scrie s

d. #include <cstdlib>
 #include <iostream>
 using namespace std;
 int i,s,x,j;
 int main(int argc, char *argv[])
 {
 for(i=1;i<=3; i++)

```

    {
        cout<<" x= "; cin>>x;
        s=0;
        for(j=1; j<=i; j++)
            s=s+x % 10;
        cout<<s;
    }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 98:

1. d

2. a. 3

b. 16 17 18 19 20 21 22 23 24

c. citește n

 $i \leftarrow \lfloor \sqrt{n} \rfloor$

scrie i

d. #include <cstdlib>

#include <iostream>

using namespace std;

int n,i;

int main(int argc, char *argv[])

{

cout<<" n= "; cin>>n;

i=1;

while (i*i<=n)

i++;

cout<< i-1 <<endl;

system("PAUSE");

return EXIT_SUCCESS;

}

Varianta 99:

1. d

2. a. 6

b. 1 3 5 7 9

c. **putere(p,x)**

```

daca x>0
  atunci
    putere(p,x-1;
    p←(4*p)%10;
  altfel p←1;
  ■
citește x
p ← 1
putere(p,x)
scrie p

```

Sau secvența:

```

citeste x
daca x % 2 =0
  atunci p←6
  altfel p←4
  ■
scrie p;

```

d.

```

#include <cstdlib>
#include <iostream>

using namespace std;

int x,p,i;

int main(int argc, char *argv[])
{
    cout<<" x= "; cin>>x;
    p=1;
    for(i=1; i<=x; i++)
        p = (p*4) % 10;
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

```

Varianta 100:**1. a****2. a. 1****b. 106 115 124**

c.

```

#include <cstdlib>
#include <iostream>

using namespace std;

long a,b;

int main(int argc, char *argv[])
{
    cout<<" a= "; cin>>a;
    do{
        b=0;
        while (a!=0)

```

```
        {
            b += a % 10;    a /= 10;
        }
        a=b;
    }while (a>=10);
    cout<<" b= "<<b<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

- d.** citește a
repetă
| $a \leftarrow [a/10] + a\%10$
până când $a < 10$
scrie a

