!!! 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 perderi 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. c **2.** d

3.
```
v1=A.x-B.x;
v2=A.y-B.y;
d=sqrt(v1*v1+v2*v2);
cout<<" d= "<<d;
```

4. Nodul cu cei mai mulți fii este 6
Frunzele arborelui sunt nodurile: 1 2 3 8

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, m, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        if (i<j)
            a[i][j]=i;
          else a[i][j]=j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<setw(3)<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 2:

1. a **2.** c **3.** 5 si 2

4.
```
if  (a[k,j] % 2 == 1)
      s += a[k][j];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;
char cuv[22];
```

```
int main(int argc, char *argv[])
{
    cout<<" cuvantul: "; cin>>cuv;
    for(i=1; i<=strlen(cuv); i++)
      cuv[i]=toupper(cuv[i]);
    cout<<cuv<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 3:

1. b **2.** c **4.** elene

3.
```
f.x=f1.x*f2.y+f1.y*f2.x;
f.y=f1.y*f2.y;
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, n, j, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
           a[i][j]=n-j+1;
           if (i == j)
              a[i][j]=0;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 4:

1. b **2.** a **3.**

2
1

4.
```
if ( (s[i]>='a') && (s[i]<='z') )
      s[i]='W';
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, n, j, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=n-i+1;
          if (i+j == n+1)
             a[i][j]=0;
        }
   for(i=1; i<=n; i++)
      {
      for(j=1; j<=n; j++)
        cout<<setw(4)<<a[i][j];
      cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 5:

1. b **2.** d **3.** 14 frunze

4.
```
if ( s[i] == c)
      s[i]=d;
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, n, m, j, a[10][10];

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

```
        for(j=1; j<=m; j++)
          {
            if (i<j)
               a[i][j]=j;
              else a[i][j]=i;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=m; j++)
            cout<<setw(4)<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 6:

1. a **2.** c **3.** 14 muchii **4.** 16

5.

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

using namespace std;

int i;
char s[256];

int main(int argc, char *argv[])
{
    cout<<" textul: "; cin>>s;
    for(i=1; i<strlen(s); i++)
       if ( (s[i-1] == ' ') && (s[i]!=' ') )
          s[i]=toupper(s[i]);
    if (s[0]!=' ')   s[0]=toupper(s[0]);
    cout<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 7:

1. a **2.** d

3.

```
cout<<x.nume<<" ";
cout<<x.clasa<<" ";
cout<<x.media;
```

4. 2 muchii

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;
char s[256], c;

int main(int argc, char *argv[])
{
    cout<<" textul: "; cin>>s;
    for(i=0; i<strlen(s); i++)
       if ( (s[i]!='a') && (s[i]!='e') && (s[i]!='i') && (s[i]!='o') && (s[i]!='u') )
          c=s[i];
    cout<<" ultima consoana: "<<c<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 8:

1. c **2.** a **3.** abefgh 6 **4.** 3

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int n, p, i, j, k, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" p= "; cin>>p;
    k=-1;
    for(i=1; i<=n; i++)
      for(j=1; j<=p; j++)
        {
          k += 2;
          a[i][j]=k*k;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=p; j++)
          cout<<setw(6)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 9:

1. c **2.** a **3.** abcdea **4.** 5

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int n, i, j, s, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        };
    s=0;
    for(i=1; i<=n; i++)
      cout<<a[1][i]<<" ";
    for(i=2; i<=n-1; i++)
      cout<<a[i][n]<<" ";
    for(i=n; i>=1; i--)
      cout<<a[n][i]<<" ";
    for(i=n-1; i>=2; i--)
      cout<<a[i][1]<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 10:

1. a **2.** c **3.** 3 **4.** 3081

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int n, p, i, j, k, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" p= "; cin>>p;
    k=-2;
```

```
      for(i=1; i<=n; i++)
        for(j=1; j<=p; j++)
          {
            k += 2;
            a[i][j]=k*k;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=p; j++)
            cout<<setw(6)<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 11:

1. a **2.** d **3.** 11 brcdbr **4.** 64

5.

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

using namespace std;

int n, m, i, j, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=m; i++)
      {
        int min=a[i][1];
        for(j=2; j<=n; j++)
          if (min>a[i][j])
             min=a[i][j];
        cout<<min<<" ";
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 12:

1. b **2.** a **4.** 11 AbcdEfghOId

3.
```
struct elev {
               char nume[31];
               int nota1, nota2, nota3;
             } e ;
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int n, i, j, a[10][10];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i+j == n+1)
           a[i][j]=0;
          else if (i+j < n+1)
                  a[i][j] = i;
                 else a[i][j] = n-j+1;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(6)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 13:

1. c **2.** b **4.** 11 bcdfghd

3.
```
struct produs {
                 char nume[31];
                 double pret;
               } m ;
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>
```

```
using namespace std;
int n, i, j, a[10][10];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i+j == n+1)
           a[i][j]=0;
          else if (i+j < n+1)
                  a[i][j] = 1;
                 else a[i][j] = 2;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(6)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 14:

1. b **2.** c **3.** 9 2 **4.** 2 3 4 6

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>
using namespace std;
int n, i, j, a[5][5];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(j=1; j<=4; j++)
      {
        for(i=1; i<=4; i++)
          a[i][j] = n % 10;
        n /= 10;
      }
    for(i=1; i<=4; i++)
      {
        for(j=1; j<=4; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
```

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

Varianta 15:

1. c **2.** d **3.** bemeut

4. Gradul minim este: 2
Nodurile cu gradul minim sunt: 5 7 8

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[5][5];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=5; i++)
      {
        for(j=1; j<=5; j++)
          a[i][j] = n % 10;
        n /= 10;
      }
    for(i=1; i<=5; i++)
      {
        for(j=1; j<=5; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 16:

1. b **2.** a

3. Numarul minim este 2, iar în vârful stivei va ramane elementul 7

4.
```
clasa a-XII-a A
clasaaa
```

5.
```
#include <cstdlib>
```

```
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == j) || ( i+j == n+1) )
           a[i][j]=4;
          else a[i][j]=3;

    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 17:

1. a **2.** b

3. Numarul minim este 3 iar în stiva mai ramâne **un** element.

4.
```
11
b*t
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[21][21];

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

```
            cout<<setw(4)<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 18:

1. c **2.** a **3.** În vârful stivei este 2 iar in stiva sunt 3 elemente.

4.
```
a="informatica";
for(i=0; i<=srten(a); i++)
  if ( (s[i]=='a') || (s[i]== 'e') || (s[i]=='i') || (s[i]=='o') || (s[i]=='u') )
     cout<<"*";
    else
      cout<<a[i];
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i % 2 == 1)
           a[i][j]=i;
          else a[i][j]=j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 19:

1. a **2.** c **3.** 2008bac2008 **4.** 5 şi 4

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (j % 2 == 1)
           a[i][j]=i+j;
         else a[i][j]=i;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 20:

1. d **2.** a **3.** 9 şi 7

4.
```
a="Bac 2008 iulie";
for(i=strlen(a); i>=0; i--)
    cout<<a[i];
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

long n; int i, j, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=i+j;
         else a[i][j]=a[i][j-1]+a[i-1][j];
```

```
        for(i=1; i<=n; i++)
          {
            for(j=1; j<=n; j++)
              cout<<setw(4)<<a[i][j];
            cout<<endl;
          }
        cout<<endl;
        system("PAUSE");
        return EXIT_SUCCESS;
    }
```

Varianta 21:

1. d **2.** c **3.** ev.data_nasterii.an **4.** 4

5.

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

using namespace std;

int i;   char s[251];

int main(int argc, char *argv[])
{
    cout<<" Textul: "; cin>>s;
    for(i=0; i<=strlen(s)-1; i++)
      if (s[i] == s[i+1])
          cout<<s[i]<<s[i+1]<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 22:

1. b **2.** a **3.** 5 **4.** 4

5.

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

using namespace std;

int i, j, m, n, k, a[101][101];

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

```
        {
          for(j=1; j<=n; j++)
            cout<<setw(4)<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 23:

1. b **2.** d **3.** lantul maxim are 3 muchii **4.** 200

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, m, n, k, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    k=m*n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=i+j-1;
         else a[i][j]=a[i-1][j]+a[i][j-1];
    cout<<"Elementul solicitat este: "<<a[m][n]<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 24:

1. a **2.** c **3.** `delete(s,1,2;`

4.
```
for(i=1; i<=n; i++)
  for(j=1; j<=n; j++)
    {
      a[i][j]=(i+j-1) % n;
      if (a[i][j] == 0)
          a[i][j]=n
    }
```

5.
```
#include <cstdlib>
#include <iostream>
```

```
using namespace std;

int i, j;
char s[251], s1[251], s2[251];

int main(int argc, char *argv[])
{
    cout<<" Cuvantul 1: "; cin>>s1; cin.get();
    cout<<" Cuvantul 2: "; cin>>s2;
    i=strlen(s1);
    j=strlen(s2);
    while ( (i>0) && (j>0) && (s1[i] == s2[j]) )
        {
           i--; j--;
        }
    for(j=i+1; j<=strlen(s1)-i+1; j++)
       s[j-i-1]=s1[j];
    cout<<" sufixul: "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 25:

1. c **2.** d **3.** `y= sqrt(x)+1.0/x+abs(x);`

4.
```
ok=0;
for(i=1; i<=strlen(s); i++)
  if ( (s[i]>='0') && (s[i]<='9') )
      ok=1;
if (ok)
    cout<<" CORECT";
   else cout<<" INCORECT";
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, m, n, p, a[101][101];

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

```
      for(j=1; j<=n; j++)
        {
          p=a[1][j];
          for(i=2; i<=m; i++)
            p *= a[i][j];
          if (p > max)
              max=p;
        }
      for(j=1; j<=n; j++)
        {
          p=a[1][j];
          for(i=2; i<=m; i++)
            p *= a[i][j];
          if (p == max)
              cout<<j<<" ";
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 26:

1. d **2.** c **3.** `roton` **4.** 4 elem.

5.

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

using namespace std;

int i, j, n, p, k, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          p=1;
          for(k=1; k<=n; k++)
            if (k!=i)   p *= a[k][j];
          if (p == a[i][j])
              cout<<p<<" ";
        }
    cout<<endl;
```

```
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 27:

1. a **2.** b **4.** 6

3.
```
H.x=F.x*G.y+F.y*G.x;
H.y=F.y*G.y;
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i ==1 ) || (j == 1) || (j == n) )
           a[i][j]=1;
          else a[i][j]=a[i-1][j-1]+a[i-1][j]+a[i-1][j+1];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<setw(4)<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 28:

1. b **2.** c **3.** 0 **4.** 3

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j;   char s1[21], s2[21];

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

```
      cout<<" s1= "; cin>>s1;
      strcpy(s2,s1);
      for(i=0; i<=strlen(s2); i++)
        if (s2[i] == 'a')
          {
            for(j=i; j<strlen(s2)-1; j++)  s2[j]=s2[j+1];
            s2[strlen(s2)-1]=0;
          }
      if (s1!=s2)   cout<<s2;
      strcpy(s2,s1);
      for(i=0; i<strlen(s2); i++)
        if (s2[i] == 'e')
          {
             for(j=i; j<strlen(s2)-1; j++) s2[j]=s2[j+1];
             s2[strlen(s2)-1]=0;
          }
      if (s1!=s2)   cout<<s2;
      strcpy(s2,s1);
      for(i=0; i<=strlen(s2); i++)
        if (s2[i] == 'i')
          {
             for(j=i; j<strlen(s2)-1; j++) s2[j]=s2[j+1];
             s2[strlen(s2)-1]=0;
         }
      if (s1!=s2)   cout<<s2;
      strcpy(s2,s1);
      for(i=0; i<=strlen(s2); i++)
        if (s2[i] == 'o')
          {
             for(j=i; j<strlen(s2)-1; j++) s2[j]=s2[j+1];
             s2[strlen(s2)-1]=0;
          }
      if (s1!=s2)   cout<<s2;
      strcpy(s2,s1);
      for(i=0; i<=strlen(s2); i++)
        if (s2[i] == 'u')
          {
             for(j=i; j<strlen(s2)-1; j++) s2[j]=s2[j+1];
             s2[strlen(s2)-1]=0;
          }
      if (s1!=s2)   cout<<s2<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 29:

1. a **2.** d **3.** atac **4.** 2

5.
```
#include <cstdlib>
```

```
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, a[7][7], ok;   double pp, p;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    pp=1;
    for(j=1; j<=n; j++)
      {
        p=double(a[1][j]) / a[1][1];
        ok=1;
        for(i=2; i<=n; i++)
          if (double(a[i][j]) / a[i][1] != p)
             ok=0;
        if ( (ok) && ( (p-int(p)) == 0) )
           pp=pp*p;
      };
    cout<<setw(5)<<setprecision(0)<<pp<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 30:

1. c **2.** a **3.** 2 3 4 5 **4.** 8

5.

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

using namespace std;

int i, j, n, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if ( (i == 1) || (j == 1) )
           a[i][j]=1;
          else a[i][j]=a[i][j-1]+a[i-1][j];
    for(i=1; i<=n; i++)
```

```
        {
          for(j=1; j<=n; j++)
            cout<<setw(4)<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 31:

1. c **2.** b

3.
```
struct masina{
              char marca[21];
              int anul_fabricatiei;
            };
```

4.

varf	
	6
	11

varf	
	200
	100
	6
	11

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, s, a[21][21];

int main(int argc, char *argv[])
{
    for(i=1; i<=10; i++)
      for(j=1; j<=7; j++)
        {
          cout<<" a["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0;
    for(i=1; i<=7; i++)
      s += a[1][i];
    for(i=2; i<=9; i++)
      s += a[i][7];
    for(i=7; i>=1; i--)
      s += a[10][i];
    for(i=9; i>=2; i--)
      s += a[i][1];
    cout<<" s= "<<s<<endl;
    system("PAUSE");
```

```
        return EXIT_SUCCESS;
    }
```

Varianta 32:

1. b **2.** d **3.** 8

4.
```
9  9  9
8  8  8
7  7  7
6  6  6
5  5  5
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;  char c1, c2, s[251];

int main(int argc, char *argv[])
{
    cout<<" c1= "; cin>>c1; cin.get();
    cout<<" c2= "; cin>>c2; cin.get();
    cout<<" s= "; cin.get(s,250);
    cout<<s<<endl;
    for(i=1; i<=strlen(s); i++)
      {
        if (s[i] == c1)
           s[i]=c2;
         else if (s[i] == c2)
                s[i]=c1;
      }
    cout<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 33:

1. a **2.** c

3.
```
struct cerc {
            int x,y;
            double raza;
           } x;
```

4.
```
 2  3  4
 5  6  7
 8  9 10
```

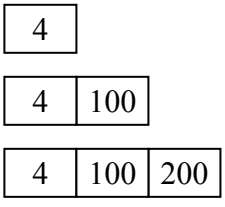
```
11 12 13
14 15 16
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, cuv, lit[40];
char c, s[251];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,250);
    if (s[0]=' ')
       cuv=0;
      else cuv=1;
    for(i=1; i<=strlen(s); i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
        cuv++;
    cout<<" cuv= "<<cuv<<endl;
    for(i=0;i<strlen(s); i++)
      if (s[i] != ' ')
          lit[s[i]-'A']++ ;
    for(c='B'; c<='Z'; c++)
      if ( (c != 'E') && (c != 'I') && (c != 'O') && (c != 'U') )
         if (lit[c-'A'] != 0)
             cout<<c<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 34:

1. b **2.** c **4.** `asta`

3.



5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[21][21];

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

```
      cout<<" n= "; cin>>n;
      k=0;
      for(i=1; i<=n; i++)
        for(j=1; j<=n; j++)
          {
            if (k % 3 == 0)
               k += 2;
              a[i][j] = k;
            k += 2;
          }
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=n; j++)
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 35:

1. d **2.** c

3. 6
amat

4. Graful are 5 componente conexe.
Trebuie adaugate 4 muchii ca graful sa devina conex.

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n,  a[101][101];

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

```
            if (a[i][j]<min)
              min=a[i][j];
          cout<<min<<" ";
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 36:

1. a **2.** b **3.** 3 **4.** 171

5.

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

using namespace std;

int i, j, n, m, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(j=1;j<=m; j++)
      {
        int min=a[1][j];
        for(i=1; i<=n; i++)
          if (a[i][j]<min)
            min=a[i][j];
        cout<<min<<" ";
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 37:

1. b **2.** a **4.** $d^-(1)=3$; $d^+(5)=2$

3.

```
0 1 0 1 1
1 0 1 0 0
0 0 0 1 0
```

```
0 0 0 0 1
1 0 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, lit[40], cuv;   char s[256], c;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,250);
    if (s[0] != ' ')
       s[0]=toupper(s[0]);
    for(i=1; i<strlen(s); i++)
      {
        if ( (s[i-1] == ' ') && (s[i] != ' ') )
           s[i]=toupper(s[i]);
        if ( (s[i-1] != ' ') && (s[i] == ' ') )
           s[i-1]=toupper(s[i-1]);
      }
    if (s[strlen(s)-1] != ' ')
       s[strlen(s)-1]=toupper(s[strlen(s)-1]);
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 38:

1. d **2.** c **3.** 2 muchii **4.** 6 cicluri

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, p, a[31][31];

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

```
          int imin=1;
          for(i=1; i<=n; i++)
            if (a[i][j] < a[imin][j])
               imin=i;
          if (a[imin][j] == a[n+1-j][j])
             p *= a[imin][j];
        };
      cout<<" p= "<<p<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 39:

1. c **2.** a **3.** 3 componente conexe

4.
```
234
345
456
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, i1;
char s[256], aux;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    if ( (s[0] == 'a') || (s[0] == 'e') || (s[0] == 'i') || (s[0] == 'o') || (s[0] == 'u') )
        {
           j=0;
           while ( (s[j+1] != ' ') && (j < strlen(s)) )
                j++;
           i1=0;
           while (i1<j)
               {
               aux=s[i1];
               s[i1]=s[j];
               s[j]=aux;
               i1++; j--;
               }
        }
    for(i=1; i<strlen(s); i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
         if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
            {
               j=i;
               while ((s[j+1]!=' ')&&(j<strlen(s)-1))
```

```
                    j++;
                  i1=i;
                  while (i1<j)
                    {
                       aux=s[i1];
                       s[i1]=s[j];
                       s[j]=aux;
                       i1=i1+1; j=j-1;
                    }
               }
      cout<<" s= "<<s<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 40:

1. a **2.** d **3.** 3 componente conexe

4.
```
111
122
123
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, ok;
char s[256], s1[256];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    strcpy(s1,s);
    i=0;
    while (s1[i] != '*')  i++;
    s1[i]=0;
    i=0;
    do{
       ok=1;
       for(j=0; j<strlen(s1); j++)
         if (s[j+i] != s1[j])
           ok=0;
       if (ok)
          for(j=i; j<strlen(s)-strlen(s1)+1; j++)
             s[j]=s[j+strlen(s1)];
       i++;
     }while (i <=strlen(s)-strlen(s1)+1);
    cout<<" s= "<<s<<endl;
```

```
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 41:

1. a **2.** a **3.** Nodurile 1,3,5,7,9 sunt frunze **4.** abc

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[31][31];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        a[i][j]=i+j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 42:

1. a **2.** a **3.** 3 noduri **4.** elementul a[5,5]=5

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i;   char s[41];
int main(int argc, char *argv[])
{
  cout<<" s= "; cin.get(s,40);
  for(i=0; i<strlen(s); i++)
    if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
        cout<<s[i]<<" ";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 43:

1. a **2.** a **4.** 11

3. Nodul 4 – radăcină / 5 noduri frunză (1, 3, 5, 7, 9)

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[33][33];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i == j)
           a[i][j]=2;
          else if (i<j)
                  a[i][j]=1;
                 else a[i][j]=3;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 44:

1. a **2.** d **3.** 2, 6, 7 **4.** `fo`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[23][23];

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

```
          if (k>1)
                    a[i][j]=k--;
            else a[i][j]=1;
        };
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=n; j++)
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 45:

1. a **2.** a **4.** a[2,1]=1

3. Dec }enții radăcinii: 1, 7 / Frunze 5, 6, 8, 9

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j;   char s[41];
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,40);
    for(i=0; i<strlen(s); i++)
      {
        for(j=0; j<strlen(s);j++)
          if (i!=j)
             cout<<s[j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 46:

1. c **2.** a **3.** 6 frunze **4.** 1 element

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i;  char s[101];
int main(int argc, char *argv[])
```

```
{
     cout<<" s= "; cin.get(s,100);
     for(i=0; i<strlen(s);i++)
       if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
          s[i]++ ;
     cout<<" s= "<<s<<endl;
     system("PAUSE");
     return EXIT_SUCCESS;
}
```

Varianta 47:

1. c **2.** b **3.** acalaureat

4. `f.a % k =0 && f.b % k =0`

5.

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

using namespace std;

int i, j, n, m, m1, a[101][101], b[101][101];

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

    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if (i % 2 == 0)
           b[i / 2][j]=a[i][j];
    m1 = m / 2 ;
    for(i=1; i<=m1; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<b[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 48:

1. b **2.** a **3.** 1→ 2 → 6 → 5 (lungime 3)

4.
```
sqrt(a.x*a.x+a.y*a.y)
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[101][101], b[101][101];

int main(int argc, char *argv[])
{
   cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          k +=2;
          a[i][j]=k;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 49:

1. d **2.** c **3.** (x.med1 + x.med2) / 2 **4.** 1

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, k;   char s[21], s1[21];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    s1[0]=0;
    for(i=0; i<strlen(s); i++)
      if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
        {
           k=strlen(s1);
           s1[k]=s[i]; s1[k+1]=0;
```

```
        }
    cout<<" s1= "<<s1 <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 50:

1. a **2.** d **3.** 6 noduri **4.** r

5.

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

using namespace std;

int i, j; char s[101], s1[101];
int vocala(char);

int main(int argc, char *argv[])
{
    cout<<" s1= "; cin.get(s1,100);
    strcpy(s,s1);
    i=0;
    while ( (!vocala(s[i])) && (i<strlen(s)) )
       i++;
    if (i<strlen(s))
       for(j=i;j<strlen(s); j++)
          s[j]=s[j+1];
    i=strlen(s);
    while ( (!vocala(s[i])) && (i >= 0) )
        i--;
    if (i >=0)
       for(j=i;j<strlen(s); j++)
          s[j]=s[j+1];
    cout<<" s= "<<s <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

int vocala(char c)
{
  if ( (c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u') )
     return 1;
    else return 0;
}
```

Varianta 51:

1. a **2.** d **3.** 12

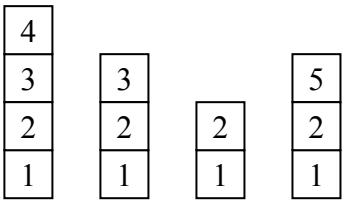
4. Radacina 2 iar nodurile terminale 1, 4, 5, 8, 10

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, ok;  char s[31];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,30);
    ok=1;
    for(i=0; i<strlen(s); i++)
      if ( (s[i] != ' ') && ( (s[i] < 'a') || (s[i] > 'z') ) && ( (s[i] < 'A') || (s[i] > 'Z') ) )
         ok=0;
    if (ok)
       cout<<" DA "<<endl;
      else cout<<" NU "<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 52:

1. a **2.** b **3.** 20

4.



5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;   char s[101];

int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,100);
    if (s[0] != ' ')
       cout<<s[0];
    for(i=1;i<strlen(s);i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
         cout<<s[i];
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 53:

1. c **2.** a **3.** 2

4. Tata=(3, 4, 4, 0, 2, 3, 6, 6). Desc }entii sunt 6, 1, 7, 8 (insa numai primii sunt desc }enți directi)

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, x, y, a[21][21], aux;

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    cout<<" x= "; cin>>x;
    cout<<" y= "; cin>>y;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=m; i++)
      {
        aux=a[x][i];
        a[x][i]=a[y][i];
        a[y][i]=aux;
      }
    for(i=1; i<=m; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 54:

1. d **2.** b **3.** k1=7; k2=4 **4.** 7

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, j, n, x, a[21][21];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" x= "; cin>>x;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i % 2 == 0)
           a[i][j] = x % 10;
          else a[i][j]=x / 10;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 55:

1. c **2.** a **3.** 2 1

4.

1	2	3	4

2	3	4

2	3	4	5

5.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, x;  char s[101], s1[101];
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,100);
    s1[0]=0;
    for(i=0; i<strlen(s); i++)
      if ( (s[i] >= '0') && (s[i] <= '9') )
        {
          x=strlen(s1);
          s1[x]=s[i]; s1[x+1]=0;
        }
    cout<<" s1= "<<s1 <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 56:

1. c **2.** d **3.** 2, 3, 5, 8 **4.** `(c>='a' && (c<='z')`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[26][26];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" k= "; cin>>k;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (j<=k)
           a[i][j]=1;
          else a[i][j]=2;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 57:

1. c **2.** a **3.** 5

4. ((c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u'))

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a, mat[26][26];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" a= "; cin>>a;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i<a)
           mat[i][j]=1;
          else if (i == a)
```

```
                    mat[i][j]=0;
                  else mat[i][j]=2;
      for(i=1; i<=n; i++)
        {
          for(j=1; j<=n; j++)
            cout<<" "<<mat[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 58:

1. b **2.** b **3.** 2 **4.** i!=j

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, c;  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<strlen(s); i++)
      if ( (s[i]>='a') && (s[i]<='z') )
         c++;
    cout<<" c= "<<c<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 59:

1. a **2.** c **3.** 1, 2, 6, 7, 8 **4.** `i=9`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, a[9];  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<=strlen(s); i++)
      if ( (s[i]>='0') && (s[i]<='9') )
         a[s[i]-'0']++;
```

```
      int max=a[0];
      for(i=0; i<=9; i++)
        if (max<a[i])
           max=a[i];
      i=0;
      while (a[i]<max)
        i++;
      cout<<i<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 60:

1. d **2.** c **3.** 1 **4.** 75

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, a[41];   char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<=strlen(s); i++)
      if ( (s[i]>='a') && (s[i]<='z') )
         a[s[i]-'a']++;
    int max=0;
    for(i=0; i<=40; i++)
      if (max<a[i])
         max=a[i];
    i=0;
    if (max!=0)
       {
          while (a[i]<max)
            i++;
          cout<<char(i+'a') <<endl;
       }
      else cout<<" NU "<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 61:

1. d **2.** c **3.** 99 **4.** f

5.
```
#include <cstdlib>
```

```
#include <iostream>
using namespace std;
int i, j, n, a[101][101];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(j=1; j<=n; j++)
      a[n][j]=j;
    for(i=n-1; i>=1; i--)
      for(j=1; j<=i; j++)
        a[i][j]=a[i+1][j-1]+a[i+1][j]+a[i+1][j+1];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 62:

1. a **2.** b **3.** 0 **4.** e

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, a[255];  char s[256];
int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    for(i=0; i<strlen(s); i++)
      if ( (s[i] >= 'a') && (s[i] <= 'z') && (a[s[i]] == 0) )
          {
             cout<<s[i]<<" ";
             a[s[i]]=1;
          }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 63:

1. b **2.** b **3.** 6

4.
```
if ( strlen(s1) < strlen(s2) )
      cout<<s1<<" "<<s2;
   else cout<<s2<<" "<<s1;
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, m, k, a[51][51];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    k=1;
    for(j=1; j<=m; j++)
      for(i=1; i<=n; i++)
          a[i][j]=k++;
     for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 64:

1. d **2.** a **4.** 3

3.
```
0 1 1 0 0
1 0 1 1 0
1 1 0 1 1
0 1 1 0 1
0 0 1 1 0
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j; char s[101];
int vocala(char);

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

```
    cout<<" s= "; cin.get(s,100);
    for(i=strlen(s); i>0; i--) s[i]=s[i-1];
    s[0]=' ';
    c=0;
    for(i=1; i<strlen(s); i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
         {
            j=i;
            while ( (s[j+1] != ' ') && (j < strlen(s)) )
               j++;
            if ( vocala(s[i]) && vocala(s[j]) )
               c++;
         }
    cout<<c<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}

int vocala(char c)
{
  if ( (c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u') )
     return 1;
    else return 0;
}
```

Varianta 65:

1. c **2.** d **3.** 5, 8 **4.** f

5.

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

using namespace std;

int i, j, n, m, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    k=1;
    for(i=1; i<=n; i++)
      if (i % 2 == 1)
         for(j=1; j<=m; j++)
              a[i][j]=k++;
        else for(j=m; j>=1; j--)
                  a[i][j]=k++;
     for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
```

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

Varianta 66:

1. c **2.** b **3.** 3, 5

4.
```
1 1 1 1 1
4 4 4 4 4
3 3 3 3 3
2 2 2 2 2
5 5 5 5 5
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j;   char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=0; i<strlen(s); i++)
      {
         for(j=0; j<=i; j++)
           cout<<s[j];
         cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 67:

1. a **2.** c **3.** 2 desc }enti

4.
```
1 1 1 1
1 2 2 2
1 2 3 3
1 2 3 4
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
```

```
int i, j;  char s[51];

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,50);
    for(i=strlen(s)-1; i>=0; i--)
      {
         for(j=i; j<=strlen(s); j++)
           cout<<s[j];
         cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 68:

1. d **2.** a **3.** T=(0, 1, 1, 2, 2, 5, 5) **4.** length()

5.

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

using namespace std;

int i, j, n, m, a[51][51];   long p;

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    p=1;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if ( (i % 2 == 0) && (j % 2 == 1) && (a[i][j]>0) )
           p *= a[i][j];
    cout<<" p= "<<p<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 69:

1. b **2.** c **3.** T=(0, 1, 1, 3, 3, 4, 4) **4.** `t=copy(s,1,n;`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, ok, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    ok=1;
    for(i=2; i<=n; i++)
      for(j=1; j<=i-1; j++)
        if ( a[i][j] > 0 )
           ok=0;
    if (ok)
        cout<<" Este triunghiulara superior"<<endl;
      else cout<<" Nu este trunghiulara superior"<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 70:

1. a **2.** d **3.** T=(2, 0, 2, 5, 2)

4.
```
cout<<s[strlen(s)];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, x, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    cout<<" x= "; cin>>x;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=x+1; i<=m; i++)
```

```
        for(j=1; j<=n; j++)
          a[i-1][j]=a[i][j];
      m=m-1;
      for(i=1; i<=m; i++)
        {
          for(j=1; j<=n; j++)
            cout<<" "<<a[i][j];
          cout<<endl;
        }
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 71:

1. c **2.** d

3.
```
s1=s1+a[i][i];
s2=s2+a[i][n-i+1];
```

4.
```
cin>>e1.nume; cin.get(); cin>>e1.nota; cin.get();
cin>>e2.nume; cin.get(); cin>>e2.nota; cin.get();
if ( e1.nota >= e2.nota )
     cout<<e1.nota;
   else cout<<e2.nota;
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        a[i][j]=++k;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 72:

1. c **2.** a **3.** 3 comp. conexe **4.** 1 arc

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[101][101];

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

Varianta 73:

1. b **2.** d **3.** 2 arce; C=(1,2,3,4,1)

4.
```
int j,aux;
for(j=1; j<=n; j++)
  {
    aux=a[p][j];
    a[p][j]=a[q][j];
    a[q][j]=aux;
  }
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, nc, nv;  char s[256];
```

```
int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,255);
    for(i=strlen(s); i>0; i--) s[i]=s[i-1];
    s[0]=' ';
    nc=0; nv=0;
    for(i=1; i<strlen(s); i++)
      if ( (s[i-1] == ' ') && (s[i] != ' ') )
         {
            nc++;
            if ( (s[i] == 'a') || (s[i] == 'e') || (s[i] == 'i') || (s[i] == 'o') || (s[i] == 'u') )
               nv++;
         }
    cout<<nc<<"   "<<nv<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 74:

1. a **2.** c

3. a) 4, 6, 9 b) 5 noduri (1, 3, 4, 5, 7)

4. a) 2 muchii b) o muchie

5.

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

using namespace std;

int i, j, n, a[101][101];

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

Varianta 75:

1. d **2.** d

3. ADD 5; ELIM; **4.** 2 arce (arcul (2, 3) şi (4, 1))

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, m, a[101][101];
int main(int argc, char *argv[])
{
   cout<<" m= "; cin>>m;
   cout<<" n= "; cin>>n;
   for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if ( (i-1) / 2 % 2 == 0 )
           a[i][j]=0;
          else a[i][j]=1;
   for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 76:

1. b **2.** a **3.** 2 **4.** T=(5, 3, 6, 6, 7, 0, 6, 3)

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j;  char s[21];
int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,20);
    for(i=0; i<strlen(s) / 2; i++)
      {
        for(j=i; j<strlen(s)-i; j++)
          cout<<s[j];
        cout<<endl;
      }
    system("PAUSE");
```

```
    return EXIT_SUCCESS;
}
```

Varianta 77:

1. a **2.** c **3.** 3 **4.** 5

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i;   char s[52];

int main(int argc, char *argv[])
{
    cout<<" S= "; cin.get(s,50);
    for(i=0; i<strlen(s); i++)
      if ( ( (s[i-1] == ' ') && (s[i] != ' ') ) || ( (i == 0) && (s[0] != ' ') ) )
        s[i] = s[i]-'a'+'A' ;
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 78:

1. c **2.** b **3.** 2 **4.** 4

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int p, j;   char s[101], t[101], c[16];
int gasire(char*, char*, int);

int main(int argc, char *argv[])
{
    cout<<" textul: "; cin.get(t,100); cin.get();
    cout<<" cuvantul: "; cin.get(c,15); cin.get();
    p=0;
    do{
      p=gasire(t,c,p);
      if (p!=-1)
          {
             while ( (t[p]!=' ') && ( p<strlen(t) ) )
               p++;
             for(i=0; i<p; i++)
               s[i]=t[i];
             s[p]='?';
             for(i=p; i<=strlen(t); i++)
```

```
                s[i+1]=t[i];
              strcpy(t,s);
           }
     }while (p != -1);
     cout<<" t= "<<t<<endl;
     system("PAUSE");
     return EXIT_SUCCESS;
}

int gasire(char *s, char*c, int ind)
{
     int i,j,ok;
     for(i=ind; i<strlen(s); i++)
       if ( s[i] == c[0] )
          {
             ok=1;
             j=1;
             while ( (j<strlen(c)) && (ok) )
               {
                  if (c[j] != s[i+j] )
                     ok=0;
                  j++;
               }
             if (ok)
               return i;
          };
  return -1;
}
```

Varianta 79:

1. a **2.** a **4.** 5 muchii

3. T=(1, 0, 6, 9, 2, 5, 4, 3, 2, 6, 4, 6, 2)

5.

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

using namespace std;

int i, j;   char s[256], s1[256];
int vocala(char);

int main(int argc, char *argv[])
{
     cout<<" s= "; cin.get(s,255);
     i=0;
     while (i<strlen(s))
       {
         if ( vocala(toupper(s[i])) )
           {
```

```
                for(j=0; j<i; j++)
                  s1[j]=s[j];
                s1[i]='*';
                for(j=i+1; j<=strlen(s); j++)
                  s1[j]=s[j-1];
                strcpy(s,s1);  i++;
              }
            i++;
          }
        cout<<s<<endl;
        system("PAUSE");
        return EXIT_SUCCESS;
    }
    int vocala(char c)
    {
      if ( (c == 'A') || (c == 'E') || (c == 'I') || (c == 'O') || (c == 'U') )
         return 1;
        else return 0;
    }
```

Varianta 80:

1. d **2.** c **3.** 6 **4.** 5, 4, 3

5.

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

using namespace std;

int i, j;    char s[256], aux;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,255);
    for(i=0; i<strlen(s) / 2; i++)
      {
        j=strlen(s) / 2 + strlen(s) % 2 + i;
        aux=s[i];
        s[i]=s[j];
        s[j]=aux;
      }
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 81:

1. c **2.** a

3.
```
a=a+b;
b=a-b;
a=a-b;
```

4.
```
if (strlen(cuv) % 2 == 0)
   cout<<cuv[strlen(cuv) / 2]<<cuv[strlen(cuv) / 2 + 1];
  else cout<<cuv[strlen(cuv) / 2 + 1];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, imax, imin, jmin, jmax, aux, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
       for(j=1; j<=m; j++)
         {
           cout<<" A["<<i<<"]["<<j<<"]= ";
           cin>>a[i][j];
         }
    imin=1; jmin=1;
    imax=1; jmax=1;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
           if ( a[i][j] < a[imin][jmin] )
              {
                 imin=i;
                 jmin=j;
              }
           if ( a[i][j] > a[imax][jmax] )
              {
                 imax=i;
                 jmax=j;
              }
        }
    aux=a[imin][jmin];
    a[imin][jmin]=a[imax][jmax];
    a[imax][jmax]=aux;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
```

```
}
```

Varianta 82:

1. c **2.** c **3.** tarta

4. noduri cu grad par: 2; noduri cu grad impar: 2

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, imax, imin, jmin, jmax, aux, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
     for(i=1; i<=n; i++)
       for(j=1; j<=m; j++)
         {
           cout<<" A["<<i<<"]["<<j<<"]= ";
           cin>>a[i][j];
         }
    imin=1;
    imax=1;
    for(i=1; i<=n; i++)
        {
        if ( a[i][i]<a[imin][imin] )
            imin=i;
        if ( a[i][i]>a[imax][imax] )
            imax=i;
        }
    aux=a[imin][imin];
    a[imin][imin]=a[imax][imax];
    a[imax][imax]=aux;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 83:

1. 3 **2.** a

3.
```
0 1 1 0 0
1 0 1 0 0
1 1 0 0 0
0 0 0 0 1
0 0 0 1 0
```

4.
```
for(i=1; i<=strlen(cuv); i++)
  if ( (cuv[i]=='a') || (cuv[i]=='e') || (cuv[i]=='i') || (cuv[i]=='o') || (cuv[i]=='u') )
      cout<<cuv[i];
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m, imax, imin, jmin, jmax, aux, a[101][101];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
     for(i=1; i<=n; i++)
       for(j=1; j<=m; j++)
         {
           cout<<" A["<<i<<"]["<<j<<"]= ";
           cin>>a[i][j];
         }
    imin=1;
    imax=1;
    for(i=1; i<=n; i++)
      {
        if (a[i][n+1-i]<a[imin][n+1-imin])
            imin=i;
        if (a[i][n+1-i]>a[imax][n+1-imax])
            imax=i;
      };
    aux=a[imin][n+1-imin];
    a[imin][n+1-imin]=a[imax][n+1-imax];
    a[imax][n+1-imax]=aux;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 84:

1. a **2.** a **3.** `cout<<char(c+1);`

4. `cout<<el.nume<<" "<<el.prenume<<" "<<el.mediabac;`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, ok, a[101][101];   long p;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
     for(i=1; i<=n; i++)
       for(j=1; j<=n; j++)
         {
           cout<<" A["<<i<<"]["<<j<<"]= ";
           cin>>a[i][j];
         }
    p=1;
    ok=0;
    for(i=1; i<=n; i++)
      if (a[i][i] % 2 == 0)
         {
            ok=1;
            p *= a[i][i];
         }
    if (ok)
        cout<<" p= "<<p<<endl;
       else cout<<" IMPOSIBIL "<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 85:

1. a **2.** b

3.
```
cin>>p.nume;
cin>>p.prenume;
cin>>p.salariu;
```

4. `cout<<a[1][1]*a[2][2]*a[3][3]*a[4][4];`

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, ok, a[11][11], b[11][11], c[11][11];
```

```
long p;
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" B["<<i<<"]["<<j<<"]= ";
          cin>>b[i][j];
        }
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i<j)
           c[i][j]=a[i][j];
          else if (i>j)
                  c[i][j]=b[i][j];
                 else if (a[i][j]<b[i][j])
                         c[i][j]=a[i][j];
                        else c[i][j]=b[i][j];
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<c[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 86:

1. d **2.** a **4.** 7

3.
```
0 1 1 1 0 0
1 0 0 0 0 0
1 0 0 0 1 1
1 0 0 0 0 0
0 0 1 0 0 0
0 0 1 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>
using namespace std;
```

```
int i, j, n, i1, i2, a[21][21];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    i1=1;
    for(i=1; i<=2*n; i++)
       if (i % 2 == 1)
          for(j=1; j<=2*n; j++)
            {
              a[i][j]=i1;
              i1 += 2;
            }
         else{
               i2=i1-4*n+1;
               for(j=2*n; j>=1; j--)
                 {
                   a[i][j]=i2;
                   i2 += 2;
                 }
             }
    for(i=1; i<=2*n; i++)
      {
        for(j=1; j<=2*n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 87:

1. d **2.** b **3.** 1, 2 **4.** 45

5.

```
#include <cstdlib>
#include <iostream>
#include <iomanip>
using namespace std;
int i, j, n, s, nr, a[21][21];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
```

```
      s=0; nr=0;
      for(i=2; i<=n; i++)
        for(j=1; j<=i-1; j++)
           if (a[i][j]>0)
              {
                 s += a[i][j];
                 nr++;
              };
      cout<<setw(5)<<setprecision(2)
          <<" MA= "<<(double(s)/nr)<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```

Varianta 88:

1. a **2.** b **3.** 3, 4, 5, 6 **4.** 24

5.

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

using namespace std;

int i, j, n, s, nr, a[21][21];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0; nr=0;
    for(i=1; i<=n-1; i++)
      for(j=i+1; j<=n; j++)
         if (a[i][j]>0)
            {
               s += a[i][j];
               nr++;
            };
    cout<<setw(5)<<setprecision(2)
        <<" MA= "<<(double(s)/nr)<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 89:

1. d **2.** a **4.** 28

3.
```
0 1 1 0 0 0 0
1 0 0 1 0 0 1
1 0 0 0 1 1 0
0 1 0 0 0 0 0
0 0 1 0 0 0 0
0 0 1 0 0 0 0
0 1 0 0 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, a, c, b, T[7][7];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    a=1; b=0;
    for(i=1; i<=n; i++)
      if (i % 2 == 1)
        for(j=1; j<=n; j++)
          {
             T[i][j]=b;
             c=a+b;
             a=b;
             b=c;
          }
       else for (j=n; j>=1; j--)
               {
                 T[i][j]=b;
                 c=a+b;
                 a=b;
                 b=c;
               }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<T[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 90:

1. a **2.** b **3.** 2, 1 **4.** 10

5.
```
#include <cstdlib>
#include <iostream>
#include <iomanip>

using namespace std;

int i, j, n, s, nr, s2, nr2, a[21][21];
double m1, m2;

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    s=0; nr=0;
    for(i=1; i<=n-1; i++)
      for(j=i+1; j<=n; j++)
        if (a[i,j]>0)
           {
              s += a[i][j];
              nr++;
           }
    m1= double (s) / nr;
    s2=0; nr2=0;
    for(i=2; i<=n; i++)
      for(j=1; j<=i-1; j++)
         if (a[i,j]>0)
           {
              s2 +=a[i][j];
              nr2++;
           }
    m2= double (s2) / nr2;
    cout<<" M1-M2= "<<setw(5)
        <<setprecision(2)<<(m1-m2) <<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 91:

1. b **2.** a **3.** 3 **4.** iarba

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;
```

```
int i, j, n, m, v0, ind, a[51][51];
int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    int max=0;   ind=0;
    for(i=1; i<=n; i++)
      {
        v0=0;
        for(j=1; j<=m; j++)
          if (a[i][j]>0)
             v0++;
        if (v0>max)
          {
             max=v0;
             ind=i;
          }
      }
    cout<<" Ind= "<<ind<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 92:

1. b **2.** b **3.** (3, 6, 0, 1, 3, 1)

4. ((v.origine.x == v.extremitate.x) && (v.origine.y == v.extremitate.y))

5.

```
#include <cstdlib>
#include <iostream>
using namespace std;
int i, j, n, m, imin, jmin, a[51][51];
int main(int argc, char *argv[])
{
    cout<<" m= "; cin>>m;
    cout<<" n= "; cin>>n;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
```

```
        }
    imin=1; jmin=1;
    for(i=1; i<=m; i++)
      for(j=1; j<=n; j++)
        if (a[i][j]<a[imin][jmin])
           {
              imin=i;
              jmin=j;
           }
    for(i=1; i<=m; i++)
      for(j=jmin+1; j<=n; j++)
        a[i][j-1]=a[i][j];
    n=n-1;
    for(j=1; j<=n; j++)
      for(i=imin+1; i<=m; i++)
        a[i-1][j]=a[i][j];
    m=m-1;
    for(i=1; i<=m; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 93:

1. d **2.** b **3.** 1 **4.** 2

5.

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

using namespace std;

char sa1[201], sa2[201], s1[201], s2[201];   int i;

int main(int argc, char *argv[])
{
    cout<<" s1= "; cin.get(s1,200);  cin.get();
    cout<<" s2= "; cin.get(s2,200);  cin.get();
    for(i=0; i<strlen(s1); i++)
      if ( (s1[i] == 'a') || (s1[i] == 'e') || (s1[i] == 'i') || (s1[i] == 'o') || (s1[i] == 'u') )
         sa1[i]='*';
        else sa1[i]='#';
    sa1[strlen(s1)]=0;
    for(i=0; i<strlen(s2); i++)
      if ( (s2[i] == 'a') || (s2[i] == 'e') || (s2[i] == 'i') || (s2[i] == 'o') || (s2[i] == 'u') )
         sa2[i]='*';
        else sa2[i]='#';
```

```
    sa2[strlen(s2)]=0;
    for(i=0; i<strlen(sa1); i++)
      if (sa1[i] == sa2[i])
         cout<<sa1[i];
        else cout<<"?";
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 94:

1. b **2.** a **3.** (3, 5, 5, 5, 0)

4.
```
1: 2
2: 3, 5
3: 1, 5
4: 3
5: 4
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

char s[21], s1[21];   int i, j, k;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    i=0;
    while (s[i] != ' ') i++;
    j=i;
    while (s[i] == ' ') i++;
    for(k=i; k<strlen(s); k++)
      s1[k-i]=s[k];
    s1[i]=0;
    strcat(s1," ");
    strncat(s1,s,j);
    cout<<" s1= "<<s1<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 95:

1. b **2.** d

3. lungime:5 arcele: (1, 2; (2, 4; (4, 3; (3, 2; (2 ,5)

4.
```
1: 2
2: 1
3: 8
4: 5, 6, 7
5: 4, 6, 7
6: 4, 5, 7
7: 4, 5, 6
8: 3
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

char s[21], s1[21];   int i, j;

int main(int argc, char *argv[])
{
    cout<<" s= "; cin.get(s,20);
    i=0;
    while (s[i] != ' ') i++;
    j=i;
    while (s[i] == ' ') i++;
    s1[0]=s[i]; s1[1]=0;
    strcat(s1,". ");
    strncat(s1,s,j);
    cout<<" s1= "<<s1<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 96:

1. d **2.** a

3. (1, 2; (2, 4; (4, 3; (3, 2; (2 ,5)

4.
```
1: 2
2: 1
3: 4, 8
4: 3, 5
5: 4, 6
6: 5, 7
7: 6
8: 3
```

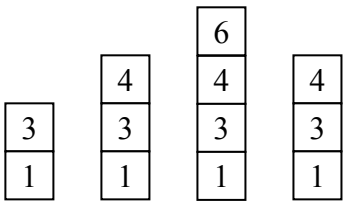
5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

char n[21], p[21], s[42];
```

```
int main(int argc, char *argv[])
{
    cout<<" nume= "; cin.get(n,20); cin.get();
    cout<<" prenume= "; cin.get(p,20);
    strcpy(s,p);
    strcat(s," ");
    strcat(s,n);
    cout<<" s= "<<s<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 97:

1. c **2.** a **3.** TITA

4.



5.

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

using namespace std;

int i, j, n, m, aux, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    cout<<" m= "; cin>>m;
    for(i=1; i<=n; i++)
      for(j=1; j<=m; j++)
        {
          cout<<" A["<<i<<"]["<<j<<"]= ";
          cin>>a[i][j];
        }
    for(j=1; j<=m; j++)
      for(i=1; i<=n/2; i++)
        {
          aux=a[i][j];
          a[i][j]=a[n-i+1][j];
          a[n-i+1][j]=aux;
        }
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=m; j++)
          cout<<" "<<a[i][j];
```

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

Varianta 98:

1. b **2.** a **3.** (0, 1, 1, 2)

4.
```
struct COLET{
            double pret, greutate;
            char nume_oras[31];
           } x;
cin>>x.pret; cin>>x.greutate;  cin.get(x.nume_oras,30);
```

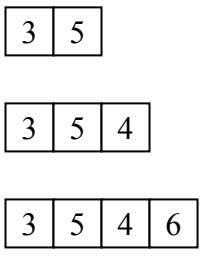
5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, k, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    k=0;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        {
          a[i][j]=k;
          k +=2;
        };
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 99:

1. b **2.** a

3.
```
0 0 0 0 1
0 0 1 0 0
0 1 0 1 0
```

4.



```
0 0 1 0 0
1 0 0 0 0
```

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, a[51][51];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=1; i<=n; i++)
      for(j=1; j<=n; j++)
        if (i>j)
           a[i][j]=i;
          else a[i][j]=j;
    for(i=1; i<=n; i++)
      {
        for(j=1; j<=n; j++)
          cout<<" "<<a[i][j];
        cout<<endl;
      }
    cout<<endl;
    system("PAUSE");
    return EXIT_SUCCESS;
}
```

Varianta 100:

1. d **2.** a **3.** 2, 4, 6 **4.** 3

5.
```
#include <cstdlib>
#include <iostream>

using namespace std;

int i, j, n, m;   long a[103][103];

int main(int argc, char *argv[])
{
    cout<<" n= "; cin>>n;
    for(i=2; i<=n+1; i++)
      for(j=2; j<=n+1; j++)
        {
          cout<<" A["<<i-1<<"]["<<j-1<<"]= ";
          cin>>a[i][j];
        }

    for(i=1; i<=n+2; i++)
```

```
        {
           a[1][i]=100000000;
           a[n+2][i]=100000000;
           a[i][1]=100000000;
           a[i][n+2]=100000000;
        }
      for(i=2; i<=n+1; i++)
        for(j=2; j<=n+1; j++)
          if ( (a[i][j]<a[i-1][j]) && (a[i][j]<a[i+1][j])
            && (a[i][j]<a[i][j-1]) && (a[i][j]<a[i][j+1]) )
             cout<<a[i][j]<<" ";
      cout<<endl;
      system("PAUSE");
      return EXIT_SUCCESS;
  }
```